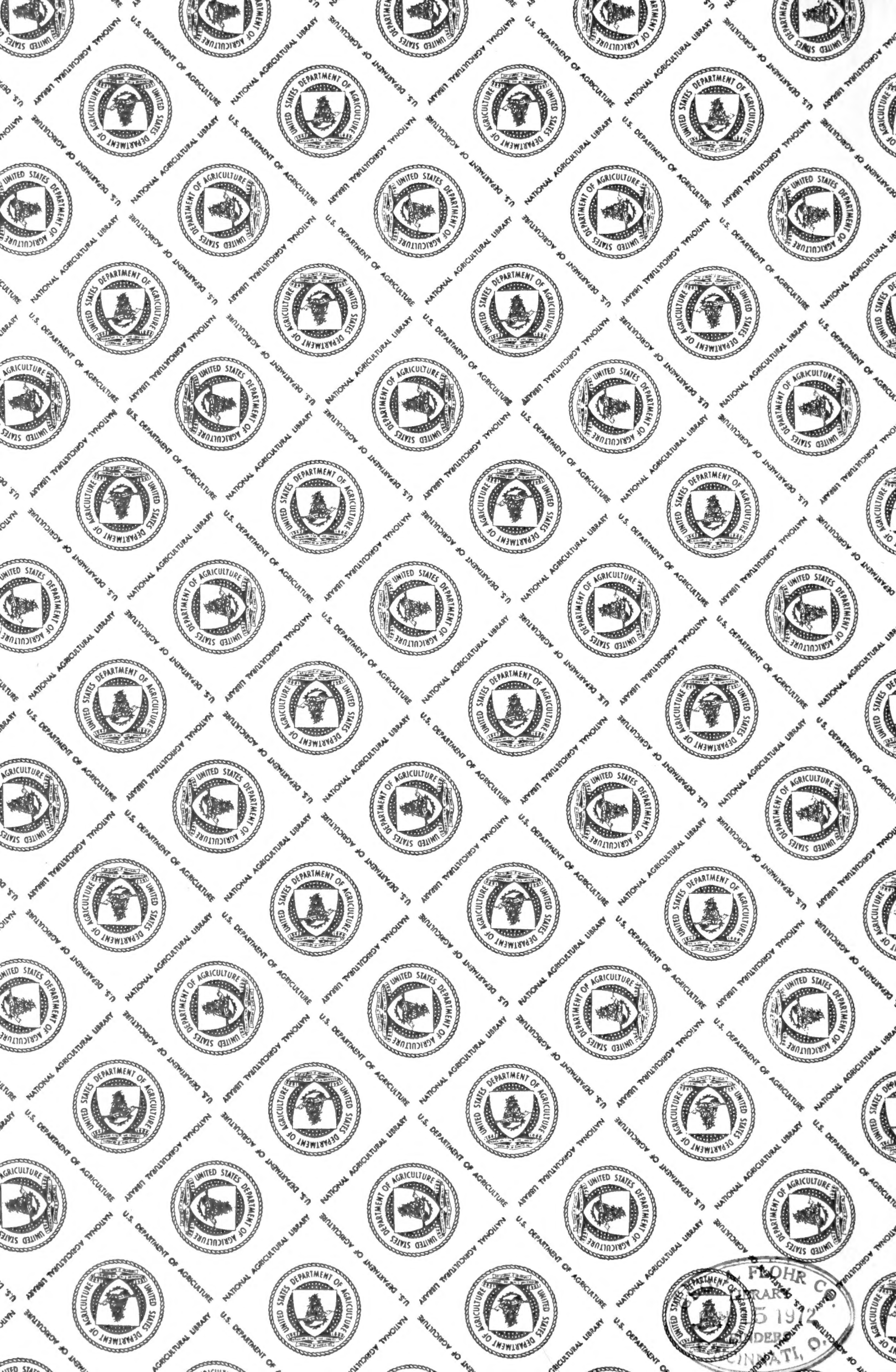
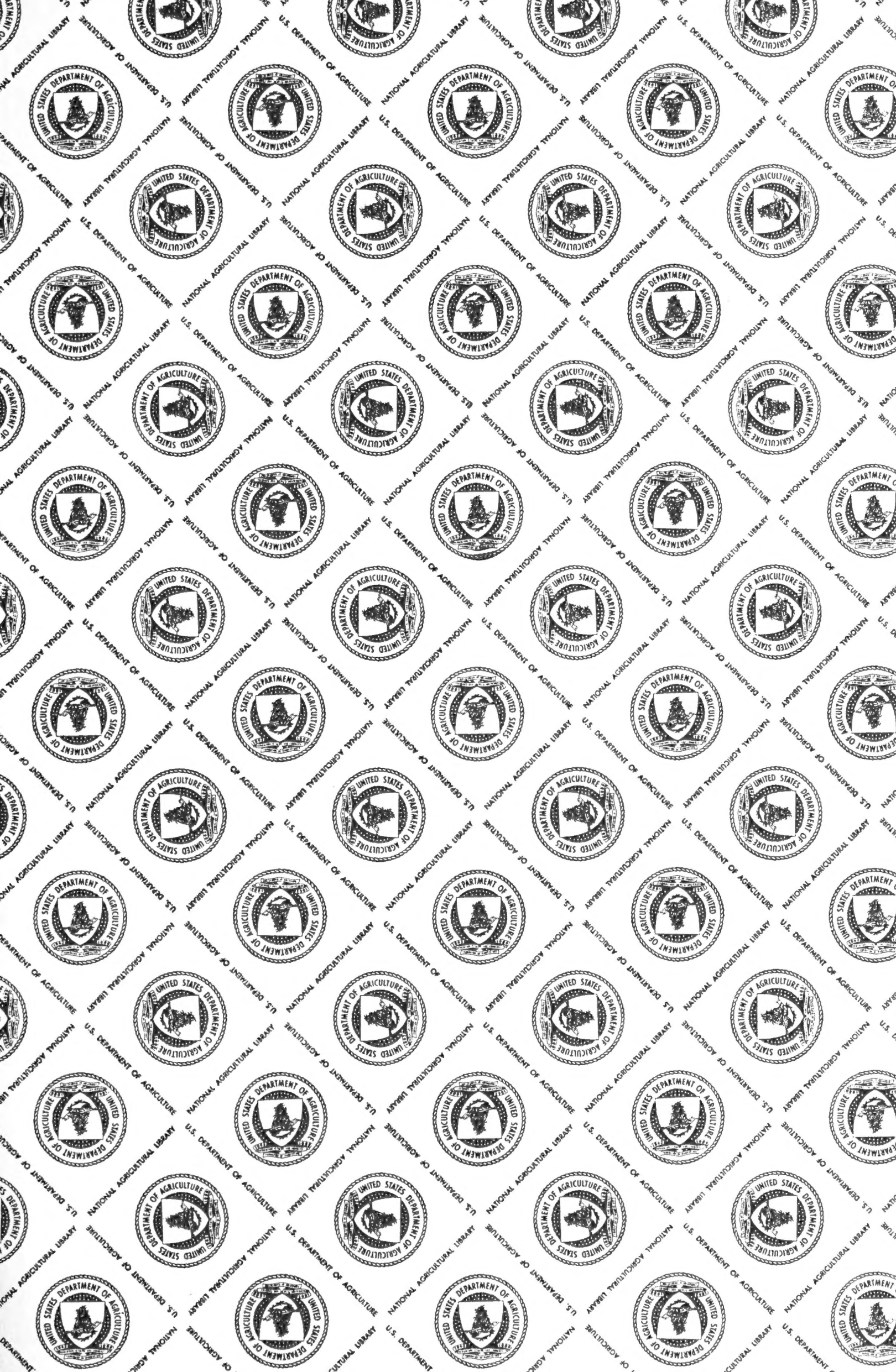


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THE COTTAGE GARDENER,
COUNTRY GENTLEMAN'S COMPANION,
AND
POULTRY CHRONICLE.

A JOURNAL OF HORTICULTURE, RURAL AND DOMESTIC ECONOMY, BOTANY,
AND NATURAL HISTORY.

CONDUCTED BY

GEORGE W. JOHNSON, Esq., AND ROBERT HOGG, Esq.

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and others.

VOLUME XXIII.



LONDON:
PUBLISHED FOR THE PROPRIETORS, 162, FLEET STREET.

1860.

257

[illegible]

THE JOURNAL OF THE

GEORGE H. BROWN

THE PUBLIC AFFAIRS
DEPARTMENT
OF THE UNITED STATES
WASHINGTON, D. C.
JANUARY 1, 1900
TO THE SECRETARY OF THE
NAVY
FROM THE SECRETARY OF THE
NAVY
RE: THE PROPOSED
REVISION OF THE
NAVY REGULATIONS
RELATIVE TO THE
DUTY OF THE
NAVY OFFICERS
IN THE
NAVY
THE SECRETARY OF THE
NAVY
HAS THE HONOR TO
ACKNOWLEDGE THE
RECEIPT OF YOUR
LETTER OF THE
10TH INSTANT
AND TO ADVISE
THAT THE
MATTER IS
BEING
CONSIDERED
BY THE
NAVY
DEPARTMENT
AND THAT
A
RESPONSE
WILL BE
MADE
AS SOON
AS
PRACTICABLE
BY THE
NAVY
DEPARTMENT
YOUR
OBLIGED
SERVANT
J. D. BROWN
SECRETARY OF THE
NAVY

TO OUR READERS.

THE following questions and replies were not long since interchanged between the little daughter of a gardener and a Sunday-school teacher:—"What should be the object of every inquiry?" "Truth." "What should guide you in the inquiry?" "Sincerity." "When obtained, what should help you to impart it?" "Kindness."

Our own experience enables us to testify that those replies were just. We have, in every inquiry relative to our appropriate subjects, endeavoured to ascertain the Truth; we have stifled all minor influences and feelings, and pursued every research cordially and sincerely; and the result of every research we have striven to impart plainly, fully, and kindly.

The consequences are these: In our twenty-three volumes now completed, and in our current pages, are contained a mass of correct information such as no other journal ever gathered together upon similar topics. Inquiries come to us from every latitude of the earth, and we spare no effort to obtain for those inquiries truthful answers from the best authorities.

JAN 23 1895

Consequently, as no inquiry however simple is ever rudely put aside by us, applications for information on all appropriate subjects abound more and more; and we do not regret that confidence in us is shown by inquiries often arriving relative to subjects not *quite* within our province. For example: Here is a letter from one for whom some years since we had the pleasure of speaking "the kind word."

"You will perceive by the enclosed that I am still with Mr. ———, and I think I shall be for some time. I like my place—I like my employer and his family—I like the people around here—and I like the country. You would not counsel me to remove, would you? I am thinking of getting married. Perhaps you will scarcely like to hear this; but I have found Solomon's virtuous woman "whose price is above rubies"—one who has been my guardian angel through that most critical period of a man's life, his entrance into manhood—one to whom I owe everything that is good in me. Shall I do wrong, think you? Being without a father, I speak to you as a son—in all my troubles and in all my joys, I come to you with all a son's simple sincerity."

Now, we shall not reveal what we said in reply to that appeal, but will confess that we were gladdened by receiving it. It is evidence that we have not wrought in vain.

Let not one of our readers think that all this is self-laudation and savouring of self-complacency, for it neither is such nor intended to be such. All the truth, all the knowledge, all the kindly tone of THE COTTAGE GARDENER is due to the contributors to its pages; and no other praise is due to the Editors than that they selected for their helpmates "the kindly-hearted cunning." Moreover, the Editors have published these results of their efforts to give evidence that they court and covet inquiries, convinced as they always have been that the way to be most useful is to impart only the knowledge needed, and as it is needed.

Finally: Rejoicing in the knowledge that the shadows of such inquirers fall thicker and faster on our desks, let us add what even the most cynical will believe is truth told with sincerity—May those shadows never be less!

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WEEKLY CALENDAR.

Day of M'nth	Day of Week.	OCTOBER 4—10, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock afterSun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
4	Tu	Habranthus Bagnoldi.	29.942—29.757	70—41	S.W.	.07	7 af 6	31 af 5	31 10	8	11 9	277
5	W	Habranthus pumilis.	29.861—29.784	62—35	S.W.	.18	8 6	29 5	43 11	9	11 27	278
6	Th	Habrothamnus elegans.	30.011—29.857	65—45	W.	.01	10 6	27 5	morn.	10	11 45	279
7	F	Hindsia longiflora.	29.490—29.318	65—40	S.W.	.24	12 6	25 5	55 0	11	12 2	280
8	S	Leonotis leonura.	29.840—29.538	61—26	W.	.00	13 6	22 5	8 2	12	12 19	281
9	SUN	16 SUNDAY AFTER TRINITY.	29.924—29.681	61—38	S.W.	.00	15 6	20 5	17 3	13	12 36	282
10	M	Leucocoryne odorata.	29.590—29.341	58—36	S.W.	.09	17 6	18 5	29 4	14	12 52	283

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 61.5° and 43°, respectively. The greatest heat, 80°, occurred on the 5th, in 1834; and the lowest cold, 28°, on the 9th, in 1849. During the period 108 days were fine, and on 116 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE plants when newly set in the house are very liable to lose a portion of their leaves: these should be removed, and the plants kept supplied with water, so as to preserve the soil moderately moist throughout. Air to be given every day, and also a portion at night, if the weather continue mild.

BULBS (Dutch).—All kinds to be immediately potted and plunged in a convenient situation ready to be removed, when wanted, to the forcing-house or pit. If potted and treated as advised some time ago, a few of them may now be excited into growth.

CHRYSANTHEMUMS.—Take up the plants from the open ground; choose a showery day for the purpose. After potting to be well watered and shaded for a few days, then placed in a cold pit, or removed to the greenhouse, and neatly tied to stakes. The buds to be thinned for a fine display.

GLADIOLI.—Pot them, and Ixias, Sparaxis, &c.; and to be watered sparingly until they begin to grow.

LILY OF THE VALLEY.—Pot some, to be treated as advised for Bulbs, that a regular supply of this favourite flower may be had during winter.

SHRUBS.—Get in, if not already done. A supply of American plants to be potted, as advised a fortnight ago, and plunged in old tan until wanted for forcing.

STOVE AND ORCHID-HOUSE.

Continue to act in unison with the season, allowing the temperature to decline slightly as light decreases. Although the Aërides, Dendrobiums, &c., will continue to enjoy a temperature of 80° by day and 70° by night, the Cattleyas will require 10° or 15° less to bring them to a healthy state of rest; for if kept in constant excitement they will continue to sprout buds from their pseudo-bulbs, which generally adds to the size of the plant at the expense of the blooms.

ACHIMENES PICTA.—Promote their growth by every attention, also *Gesnera zebrina*, which adds much to the beauty of the stove during winter.

BEGONIAS.—Encourage the different kinds for winter flowering by giving them larger pots if required.

EUPHORBIA FULGENS and SPLENDENS.—These are also worthy of especial attention, as they contribute to enliven the house at the dullest season of the year when flowers are scarce.

FORCING-HOUSES.

CUCUMBERS.—To prolong the season of fine crisp fruit it is necessary to keep the plants clean and healthy by giving them plenty of top and bottom heat.

FIGS.—The trees having no fruit likely to come to perfection, and whose leaves are fading, to be kept cool and dry, to induce an early rest. A seasonal rest should also be given by the same means to trees in pots, that they may be in a fit state for forcing early.

MELONS.—Continue to maintain a warm, dry atmo-

sphere, to give flavour to the fruit. They will require little or no water after this.

PEACHES.—Vacancies to be filled with trees from the walls on the open ground. This is a plan preferable to having young trees from the nursery, which are usually some years in covering the space allotted to them. Where the lights have been wholly removed the inside borders have had, most probably, a sufficient soaking after the late heavy rains; and, after being repaired and painted, they should be put upon the houses to protect the trees and borders from unfavourable weather.

PINES.—Ripening fruit to be kept in a dry, warm atmosphere, to give it flavour. The swelling fruit to have a warm, moist atmosphere. Water to be given to the plants cautiously; every one to be examined before it receives any, and manure water to be dispensed with altogether. The heat of the dung-pits to be kept up by renewing the linings. The crowns and suckers that are planted in the tan to have no water; all they require is attention in giving air and keeping up the heat.

VINES.—Attention to be given to the young Vines in pots that are intended for forcing, that they may not become soddened, which would injure the young roots considerably. Where netting or any other such material had been fixed over the lights that open in houses containing fruit, to prevent the ingress of wasps, it may be taken down as little mischief will now be apprehended from their attacks. Mice are sometimes very troublesome in vineries at this season, and will spoil a whole house of Grapes in a short time if not prevented. Traps should, therefore, be kept set, and every means used to prevent their ingress from the garden. Cover the border when the trees are planted outside, with a good coat of fern or any other such material before they become saturated and chilled by the autumnal rains, to be laid on thickly in layers, beginning at the front of the border, the whole to be covered with a thin layer of good straw, and fastened down as a thatcher does the straw on stacks.

WILLIAM KEANE.

CRYSTAL PALACE IN THE MIDDLE OF SEPTEMBER.

I SAID that the so-called *Trentham Scarlet* Geranium has taken the place of *Tom Thumb* all over the Crystal Palace grounds; that the *Cottage Maid*, *Punch*, *Cerise Unique*, and *Compactum*, are their next best kinds, till we come to *Nosegays*; then that the *Purple Nosegay*, alias *Pink Nosegay*, made more stir among the visitors than all the rest of the Geraniums put together; and that, on that account, they were to have fourteen times more bulk of *Nosegays* next year. This last sentence is just as I wrote it, but it is entirely wrong in the last part of it.

It is quite true the gardener who attends the Rose Mount where these stirring *Nosegay*-beds are planted, says he had more inquiries about them than all the rest of the beds, especially from ladies who never saw that peculiar colour before; but the great exhibitors, the best plant growers in the world, did not even know the

section of the Geranium tribe to which the *Nosegays* belong. When Sir Joseph Paxton wanted to bring them out by liberal prizes, when the Crystal Palace Company began their Shows, he could get no *Nosegay* at all; but some sent *Uniques* and *Citriodoras*, and their allies, as if belonging to the *Horseshoe* breed! It was then determined to cancel the prizes for *Nosegays* till the Company should teach, not young ladies, but old practical growers, what *Nosegays* were, and how to use them. Their lesson reached this season, from A. B. C. to words of one syllable—single beds; but the book of chapters is in the press, and will be issued next season in fourteen times the bulk of the elementary lessons. And, as if to complete their industry in that branch, they have got possession, at last, of the original *Crimson Variegated Geranium*, which is mentioned in Miller's "Dictionary" as one of the first sports from Geraniums, and that sport began the *Nosegays*. Is there more than one Duke, or is there one in our peerage who possesses this crimson,—the key to *Nosegay* hybrid perpetuals? Or rather, is there a Duchess in the land who could take objections to the mode in which the chains and the upper terrace between them were planted this season? As surely as the crimson sport of Miller's time was the key to the treasury chest, from which to supply the necessary colours as soon as the artistic mind of the country could be so led as to appreciate the value of ribbon planting, and planting after the fashion of the make of ribbons, so surely did that terrace represent the key to successful planting this season. The whole bottom line of twenty oblong beds, more or less, and each bed eighteen feet long by six feet wide, more or less, were planted in three colours only, and they on the true principle of ribboning so managed as to read both ways, straight a-head from end to end, and then across the ends as you went along. A grand start that! But without actually seeing them it is simply impossible to conceive the richness of the three colours, when each colour had its legitimate portion of the breadth of the pattern.

At the beginning of the civilisation in gardening, people called them ribbons, and were content with so many rows of different kinds planted on a border. But this was soon altered for the better, and we had never more perfectly adjusted the true proportions than was done this season on the grand scale on the centre of the terrace at the Crystal Palace. The colours—crimson, scarlet, dark purple, and orange yellow, or, according to the weather, deeper or lighter than the tint of the orange. A broad band of the so-called *Trentham Scarlet*, better colour, better habit, and a much more free kind to bloom; but no one could make out which was which of the two, if in pots, and not in bloom. *Tom Thumb* is not worth more than 1s. 6d. a dozen, while this is not dear at 6s. for the same number. *Purple King* Verbena, and *Tropæolum elegans* outside, standing at one end, the distance would carry the eye,—say, over 600 feet, and the richness of the colours deceives the eye so far as, for a moment, not to account for the spaces between the beds, nor even the main centre walk which cuts them in the centre. The old disciples of the "ocular delusion," who planted the scarlets and the yellows in the centre of their plots, could not have a better thing to show them how they reduced the size of the place than a glance from one end of this bottom pattern. By-the-by, how would broad stripes of scarlet, purple, and orange, look on the bottom of the petticoat when the roads get soft, and compel the outer dress to be lifted?

Twenty of these oblong beds, and ten of them on each side of the cross-walk, with a beginning and an ending in a circular bed six feet across, giving eleven circles and ten oblongs to each half. I only read off one of the halves, as the other half is sure to be duplicate. Each circle has a standard Rhododendron, or the Umbrella Acacia in the centre; and when a standard is placed in the centre of a circle it changes the nature of it, as it

were. No matter where it is, it is cut off from depending for support from the rest of the beds all round it, or right and left of it. These beds, standing on their own merits only, received a most appropriate name at the hands of the ladies. They call them "pincushion-beds,"—"most convenient things, and you can stick anything into them."

Now, when one can stick in any plants without spoiling the effect of a pattern, it is indeed most convenient; and so are the twenty-two circular pincushion-beds on the lower side of the centre of the grand terrace at the Crystal Palace. Yet have a proper understanding of my meaning. It is only by using the whole line of oblong beds on the same pattern that the circles could not interfere with it. Let the beds be each of different plants and colours, as the grouping system is at Kew, and the circles must be made to depend on what is right and left of it. It is ten times more convenient as it is, or say rather ten times more simple and eleven times more convenient, there being eleven beds in each half. If you fully comprehend the principle you cannot find fault with the planting of any of them on principle. It may or may not be to your taste; but your taste, or their taste, or my own taste, is no more law in the face of principle than law is logic in the face of the world.

The first pincushion-bed was on this wise:—blue and white *Lobelia speciosa* and *Flower of the Day*, dwarf plants. The 2nd, *Brilliant* and variegated *Alyssum*, "plant for plant," all over the bed, and dwarf *Fair Helen* to give more green and vary the tints; and the edging of *Grossulariaefolia*, very young plants, as the edge was not over three inches high.

Capt. Mangles introduced *Grossulariaefolia* first at Sunning Hill: and the *Minimums* I spoke of last week are a very improved race in the same style. No. 3 was mixed Verbenas and frosted silver plant, *Cineraria maritima*. 4th, a Cedar of Lebanon in the centre; *Lobelia speciosa* all over, and white variegated common *Hydrangea* for edging, very young little plants out of thumb-pots, or small sixties—a most capital idea. 5th, all of *Imperatrice Josephine*, the variegated *Verbena pulchella*, a favourite with most ladies. 6th, all blue *Lobelia*, edged with *Grossulariaefolia* Geranium. 7th, all *Nierembergia gracilis*. 8th, Cedar again, and all blue over the roots. 9th, red Verbenas edged with *Heliotrope* pegged close down. 10th, Blue *Lobelia* and *Flower of the Day*, edged with blue *Campanula Carpatica*; and the 11th, of blue and *Dandy*, half and half—the very prettiest bed I ever yet put my eye on. I never saw anything that way one half so good—a decided hit, in fact.

The circle, or rather the half circle, of *Araucarias* round the top of this part of the terrace has seven of these noble *Araucarias* in each half, and pedestal-beds between them. All the *Araucaria*-beds are covered with *Lobelia speciosa*, the finest I have seen, and all from seeds saved in the garden. The pedestal-beds are of *Village Maid* Geranium and *Trentham Scarlets* alternately, both being edged with variegated Geraniums inside and outside the circles; the pedestals filling the centre. These are noble masses; but the successor of *Tom Thumb* outshines the *Village Maid* and all others of his race.

The *Araucarias* are in the height of vigour, and outstrip the *Deodars* in growth. On the outer half of the half-circle of *Cinerarias*, and next the chain patterns, are seven oblong beds with eight pedestals between—four tall ones with figures on them, and four low ones with flower-vases. The same on the corresponding side. There being seven oblong beds in the range gives an odd one, the fourth, for a key-bed to be differently planted; the rest in three pairs of match beds—three beds on the right of the key-bed, and three corresponding ones on the left. Highly artistic and scientific planting this. The fourth, or centre, or key-bed is planted with a good kind—*Lucia rosea* Geranium, which does remarkably well in all parts of the garden. Next to it, right and left, are a match pair of *Ignescens superbum*, the second pair of *Tropæolum*

elegans, and the three pair (the two ends) *Flower of the Day* and variegated Alyssum; the whole seven being edged with Cerastium at the back and ends, and in front with *Flower of the Day*.

The corresponding side being on the opposite side of the main central walk, some who have learned to read without grammar, or the art of spelling and attending to the points, have been bewildered in this part of the terrace; the whole being to them like reading a dictionary. A friend of mine, a good gardener fresh from Scotland, could make no "heads or tails" of it, because the beds on both sides were as different as I have just described them. "But did you try them by the unerring test for terrace-garden planting? You should have doubled up the whole plan in your mind like folding or shutting a book; then if every bed on one page did not fit, and lie over on the top of the like of it on the next page—say beds, vases, trees, and bedders, also the same plants, or the same colours, on both pages—you might have driven Sir Joseph Paxton up into a corner, and the planters to Jericho." Well, and sure enough he never thought of that.

The two chain patterns are little differently planted from the ways of former years, but not much. I have the plan for next year, which will greatly improve them, besides being more in the science of the craft. In the centre of all the yellow links of the chain this year, a scarlet strip of Geranium cuts the yellow into two parts, but does not improve the pattern. An edging of *Mangles' Variegated* Geranium runs round all the links and the connecting bars. The vigour, the health, or the bloom was never so up to the mark in September, except, perhaps, some of the Verbenas on the Rose Mount. Looking over the wall of this terrace down to one of the water temples, the beds on both sides of the grand centre walk are planted on the same principle as the bottom beds, just told, which is entirely different from the principle on which they have been hitherto filled. The colours run down in all the oblong beds in unbroken rows; the edging is the same all the way down, and, to throw the circles on their own merits, a *Humea* is set in the centre of each, and then this "monstrous convenience" of being able to plant any mortal thing in them without infringing on the pattern occurs a second time.

The colours in this second ribbon-style are as they should stand; but, again, without seeing them, errors might pass over the best eye and ear in this world. "When his lordship and me went up the rine, we was both very unwell—him with the gout, and i with the lumbago." The ear catches the false grammar here, but cannot detect the bad spelling, or the personal pronoun; the eye would need to see them for one to be sure if they were right or wrong, and so it is in many parts of our art in planting beds.

In the centre of the oblong beds, all the way down, were a row of the *Crystal Palace* Dahlia, on each side rows of *Zelinda* Ageratum, and *Tom's* successor; the edges being Cerastium. As this will also be changed next season, the only remark which I think may be of use to you is, that the *Zelinda* without the *Crystal Palace* Dahlia would have made the pattern more telling to the eye. That leads to another observation on planting, which is this—Never risk your credit on planting, by using more than three kinds of colour in one bed, unless you are fully aware of the effect by a previous experiment; and not more than two colours unless you have had fair practice.

The Rose Mount is the place for match pairs, for single beds on their own merits, and for the true style for corner beds. The six walks leading up to the Mount have one corner bed each. They divide the Roses into six parts in the first flight, and the bedding plants into six parts in the second division, and also the summit of the Mount into six parts. The latter being sunk panels for one bed in each, and each of these beds is a long oval with

two sharp ends. The length is thirty-six feet, and the width across the middle is twelve feet. All these sixes are in three match pairs. *Punch* and *Village Maid* pairing, with the diameter of the Mount between them; he on the east, and she on the west side. Yellows south and north, in Calceolarias; and blue, or what represents it, *Purple King* Verbena, south-east and south-west. The whole six divisions are lined at top and bottom with *Mangles*, and are as steep as the sides of Arthur's Seat at Edinburgh, next Duddingston Loch.

On the flat top of the Mount the first match pair of beds and the best of the three matches are thus planted: *Nosegay* in the centre—the old *Fothergilli*; then clean clear scarlet next; but *Mrs. Vernon* thus scarleted would show better how the two help one another—the scarlet is made to look brighter, and the red in either of the two nosegays is turned into light purple. Next the scarlet, *Purple King* Verbena; then their peculiar *Lucia rosea* (perhaps *Tom Thumb's* bride), edged with a light Verbena. The second pair: *Village Maid* in the centre, Ageratum round it, then Calceolaria, and a broad band of Heliotrope. The third pair: *Salvia patens* for centre; *Ignescens major* round a yellowish-brown Calceolaria, and a Hamlet-like Verbena. The first corner bed next the railway entrance is *Ignescens superbum*. The second corner to southward, *Punch* edged with Cerastium. 3rd., *Cerise unique* and Cerastium. 4th, *Flower of the Day* mixed with variegated Alyssum. 5th, *Village Maid* and Cerastium; and 6th, with their kind of *Lucia rosea*. Between these six points, and from them up the Mount, most of the beds are in pairs, and all those that match opposite will be so in future. One of them now is *Veronica speciosa*, two-year-old plants and in full bloom.

D. BEATON.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

THE labour of political economists has, from the most remote periods, been directed to the proper cultivation of the soil; and works on husbandry are, perhaps, second to none for their number and antiquity. Neither has the subject of the present chapter any claim to originality of idea (though, we trust, it has some in detail); for, only a few years ago, a political agitator conceived the idea that Great Britain contained within itself sufficient ground to produce all that its increasing population required, and, obtaining many followers to his plan, he started the celebrated Land Scheme, by which it was expected that each occupant of a plot of from one to five acres would be able to grow all he wanted for his own and his family's use. The signal failure of this scheme, and the loss it entailed on all concerned in it, must be familiar to all newspaper readers. It is, therefore, not our intention to advise a repetition of anything like the political blunder alluded to, but to endeavour to show how a small portion of ground may produce the greatest possible amount of useful articles, either for the table of the family, or for the feeding of pigs or cows. But as the subject is one on which it might, perhaps, be difficult to find any two cases exactly alike, while very often great dissimilarity will prevail, it will be advisable, by way of prefacing the subject, to say a few words on such plots in general, and the position they are often placed in.

In taking into consideration the value of a two-acre plot of ground, we must first determine where it is situated, the description of soil, the wants of the proprietor, and many other points of a local nature; but, as it will be impossible to give specific directions for all and every case that may arise, it will be better to take one or two of the most common and likely ones; and from what is said on these, the reader will be able to deduce something that will bear on his own case, and act accordingly.

We shall, therefore, suppose that the two acres in question adjoin the dwelling of the occupant, and that

such dwelling is in the immediate neighbourhood of a town or village, or in some district not too thinly populated. In conjunction with this, we shall suppose our first plot to consist of a stiff loamy soil, not exactly saturated with water, but very retentive of it,—such a soil, for instance, as occurs in many places around London, especially on the north side; in fact, such soils exist in great breadths all over England, and are generally designated as “stiff clayey lands,”—obstinate to till, but not by any means unproductive. This plot, for distinction, we shall call the *stiff clayey soil*, to distinguish it from another of a diametrically opposite character, which may be called a *light or dry soil*. Not but that there are many variations of both; but of these variations we will speak hereafter. Suffice it to say, that the light soil here spoken of may consist of the dry sands or gravel common to some districts, or it may be of that shatter stone which overlies rocks in various places, and which furnishes surface soils of so many different qualities, but all more or less dry. Assuming, therefore, that it is one or other of the soils mentioned above that is to be operated upon, and that it lies contiguous to the dwelling-house of the occupier, and that the back of such dwelling-house or other back building juts upon it, we will begin at once with the culture or management of the ground, noting down from time to time such remarks as are necessary to connect them together; for the back premises which are here meant to include the cow-house and piggery are important features in the domestic economy we are about to treat upon, and their presence will be often alluded to.

STIFF CLAYEY SOIL, AND THE FIRST STEPS TO BE TAKEN WITH IT.

First of all, ascertain from some one well versed in farming matters if it requires draining, and if so, or rather if there is any doubt on the matter, let that operation first of all be at once performed.

Generally speaking, such soils, even if not much charged with water, are all the better for draining. Two-inch pipes about four feet deep, and from fifteen to twenty feet apart, will be sufficient; taking care to have a good outlet, and, as far as possible, an even descent to it. If it is necessary to connect all the pipes into one for an outlet, the main ought to be a three-inch pipe, which, in general, will deliver all the excess of water that falls on a two-acre plot.

This benefit being secured, and channels or drains formed for the discharge of any stream or other water that may pass through the ground, we shall proceed to the next feature in improving the holding, which is one but little practised, but which is one well worthy the trial of all having such an obstinate soil to deal with.

BURNING CLAY.

In clearing ground, it often happens that old hedges, trees, or stumps, have to be removed; and such things, being of no use in household economy, are either carelessly burnt, or lie still more carelessly in the way. Let these be conveyed to some part of the ground where the clay is more than usually stiff, and near the surface, and let such clay be dug up and thrown out from a circular space of ten feet in diameter, and one foot deep, and let the bottom be levelled smooth. Then cut two small channels across this space, crossing each other at right angles in the middle, forming small ditches three or four inches wide, and as many deep. Brickbats, which are generally to be had in most places, will do to cover these ditches, or “flues,” as we may call them; and in the centre where these “flues” meet lay a heap of such brickbats or stones, at least a barrow-load or so, and on this heap kindle a fire with any rough material that may be at hand, putting a few rough lumps of the clay by hand along with the wood or roots; but do not put on too much at first until the fire is well established, when the quantity of clay that is put on may eventually exceed

by five or six times that of the wood or other combustibles used. Of course, the process is a slow one, and such a fire may be kept burning for weeks, or even months, the attention it requires being very little; in fact, the great danger is, that it may be too much meddled with, for thrusting in sticks, or otherwise disturbing the burning mass, is hurtful to it.

Add more fuel and clay betimes, and the large heap of red ashes that will reward your pains will be found exceedingly useful. It being obtained from materials of no other use, may be regarded as so much gain; for many kinds of fuel will suggest themselves, as the rubbish from a carpenter's shop or yard. Sawdust will also burn in such a place, and other vegetable rubbish needless here to particularise.

FIRST STEPS IN TILLAGE.

Unless labour is very expensive, it would be better to have all the tillage done by hand in the first instance, except such carting as may be required; and if the ground have not hitherto been in cultivation, or has been only imperfectly broken up, it would be better to trench it at once, reserving, however, the best soils to the top as before, and if it is possible to add anything to the clayey bottom that will tend to make it less tenacious, let it be done at the time of trenching. A liberal allowance of mortar rubbish, the waste of a brick kiln, scrapings from the roads, chalk, or sandstone chippings, or, in the absence of these, or any substitute for them, lime may be added in a moderate quantity. About eight chaldrons per acre are often put on for farming crops; and as its use is to pulverise the stiff and obstinate clay, a little expense ought not to be denied; but where the other less costly ingredient can be obtained in sufficient quantities, lime might be omitted, and only used as a top dressing, in which capacity it is invaluable when spread on the tilled ground, and it easily finds its way downwards; in fact, a good liming is of great service to such stiff ground, and being slightly worked in, its appearance is not objectionable.

In like manner the burnt clay which will be reduced to a mass of red ashes, may also be used as a top dressing or manure, and may be applied when the ground undergoes the second digging; but as it will be prudent to allow the first trenching to lie at least one month, if the operation be done in summer, or two or three months if done in winter, before it be disturbed again, in order that the air may have free access to its parts, it is only necessary here to urge on the duty of trenching being done as early as possible, in order that the after operations may follow in due course.

LEVELLING THE GROUND.

This must not be done to any great extent, unless means be taken to preserve a large portion of the best soil to the top again; and unless the unevennesses are very abrupt, they had better remain as they are than that the surface soil only be taken from the hill tops and put into the hollows, for this would cause that unevenness in the fertility of the ground which it is important to avoid. The immediate neighbourhood of the house may be suitably levelled, for appearance and comfort, and if necessary the other also; but do not carry out this too far.

DIVISION OF THE GROUND.

This is a very difficult question to solve, and it is only on knowing the wants and intentions of the family that a just conclusion can be arrived at; but as our space is limited to the two acres, and the preliminary duties of draining and trenching being done, and a suitable fence and what levelling was wanted being also seen to, a few remarks on the supposed wants of the family may be acceptable here, as bearing on the cultivation. In fact, it is their requirements which must be met by a corresponding supply, and to balance this so as exactly to hit

on the quantity wanted is the subject now under consideration.

We will assume that the family consists of six persons, and that either a pony or a cow is kept, but more likely the latter, as well as a pig or two. Poultry we would not advise, on the score of economy, but for novelty they might, perhaps, be allowed; but as they are very troublesome gardeners, it would be better to consider well before they are admitted into the home circle. It is, therefore, amongst the wants of the others, including the cow and pigs, that we purpose dividing the ground into such sections as will best conduce to the well-being of the whole community.

J. ROBSON.

(To be continued.)

EVERGREENS FOR AN ORCHARD-HOUSE.

PLEASE give the names of the six best evergreens to be grown in twelve-inch pots in a small orchard-house, *without fire heat* in the winter, and to be set out of doors when the fruit bushes are placed in their stations in spring. The house affords but slight protection against frost, as it is entirely wood and glass. Plants which bloom, such as *Laurustinus*, would be preferred.—F.

[If the pots were protected, and the house kept close and dry in severe weather, we think that the single and double red Camellias, and the double white, would live and bloom. For hardy evergreens, and similar in size, that would bloom in winter, with the protection merely of glass, we would choose the following:—*Viburnum tinus variegatus*, white. *Daphne thymelæa*, yellow. *Daphne cneorum collina*, purple. *Rhododendron Dauricum*, purple. *R. Farrera*, lilac. To which add, *Erica carnea*, and *E. herbacea*, low-growing plants, with flesh-coloured flowers. *Berberis aquifolium*, would, under such circumstances, be likely to produce its bunches of yellow flowers all the winter.]

SEASONABLE HINTS.

CINERARIAS.

EXCEPT in the case of those plants that it is desirable to bloom early, care should be taken that the roots are not allowed to get pot bound in small pots, as thus a disposition to throw up flower-stalks will be averted. It is true, that the flower-stalks when appearing may be nipped off, and others will come later, but they seldom come so regular and fine as when they have known nothing of stopping. No plant is more obedient to the routine of the potting-bench. It matters not whether the plant be a tiny thing in a three-inch pot, or a large plant in a twelve-inch pot, as soon as the soil is permeated thoroughly by roots, and these roots get close to the sides of the pot, there will immediately be a disposition to throw up flower-stalks. For winter blooming, six-inch pots may be deemed a good average size. In the next month, October, the plants should be sheltered from heavy, cold rains, and from frosts at night; but these things guarded against, the plants cannot be kept too airy and cool. A cool bottom to stand on is their delight at all times. They are very impatient of heat, and especially of a dry atmosphere. We have seen fine plants taken from a cold pit in winter and spring, everything denoting the highest health, and not an insect to be seen, that had not stood on a wooden shelf in a moderately dry house a fortnight before the leaves were crumpled at the edges, and pretty well covered with green fly. Others placed on damp sand and moss, and the leaves frequently dewed until the plants were injured to the change, maintained their health, and freedom from insects.

PRIMULA SINENSIS.

Those intended to bloom early should receive their last shift at the end of September. Younger ones may be grown on. A shady place would do well for them all the autumn; but now cold drenching rains should be avoided. A rich loamy soil is best for producing abundance of bloom, and when kept long wet it is apt to be soured, the lower leaves turn yellow, and the collar of the plant becomes diseased and rots. They will need all the air possible, and coolness, just to be free from frost; but, unlike the Cineraria, they generally do best when the pots after this season stand upon a board, and during winter and spring,

in order to obtain masses of fine, coloured blooms. The pots cannot stand too near the glass. When the flower-trusses show, weak manure water may be given frequently; but whatever water be given, it should not be poured on the collar of the plant, nor yet over the leaves. The man who cannot water a plant without forming a hole in the centre of the pot close to the stem of the plant, will most likely have a fair lot of his Primulas to take to his rubbish-heap. Wherever these curved-out basins are seen in the middle of a pot, it needs no proof to show that the gardener waters merely as a work of routine, and without giving himself the least trouble or care as to results.

CALCEOLARIAS.

Those for spring blooming should now be potted separately, and repotted as they require it during the winter. Exclude frost and very drying winds, and the plants otherwise cannot be kept too cool, moist, and airy. A dry atmosphere in winter will do them more injury than cold, if the latter is not below the freezing point. They will do better standing on sand, ashes, or moss, than upon boards, or even stones, or slates, unless the latter can be kept moist. A cold frame or pit, secured from frost, is a better place for them than a house where much fire heat is used. If a green fly appears, smoke with tobacco directly, and do not wait until the plants are injured, or several generations of insects established.

SCARLET GERANIUMS FOR WINTER BLOOMING.

The best for this purpose are those struck last autumn, or early this spring. The first being the best, and grown on by successive shifts from small to larger pots during the summer. During the summer and early autumn, these plants would require merely water when necessary, picking off the flowers, training out, and full exposure to the atmosphere. This would keep them strong and compact. For a month to come all the air possible should be given, but a glass sash should be over them to protect the plants from heavy cold rains. Watering should be given merely to prevent the plants suffering, as the riper the shoots are, the better will they bloom. In winter they should have a rather dry atmosphere, an average temperature at night, not below 45°, and a good rise from sunshine, and not be over-watered, using manure water at times, or a top dressing of rich compost. Watering should be done in the forenoon when necessary, and the water should be fully 60° at least. There is such a variety of colour, and foliage too, especially among the variegated ones, that a group of these Geraniums so managed would be very telling in winter. I have not so grown them for some years, but I mean to revert to the plan mentioned above. By early stopping fine specimens may be procured, filling densely with their roots a twelve-inch pot; but good flowering plants with nice foliage may be grown in a six or eight-inch pot. Sandy loam three parts, and one part leaf mould, or very rotten dried cowdung, are the best ingredients for this purpose.

FLOREST AND FANCY PELARGONIUMS.

Those cut down early and breaking freely should be repotted without delay, if not done a month ago, shaking away carefully most of the old soil, and even curtailing the roots, if unhealthy or very bare, long, and straggling, and then repotting in a similar, or rather smaller, sized pot, so as to permit of one shift again. When the pot is full of roots, and no sign of blooming, such plants should be kept rather close, and sprinkled overhead, instead of watering much at the roots, before the roots begin to work in the fresh soil, when air must be given more freely. The more air and the less water these plants have in winter, so that they are kept slowly growing, the better will they bloom next spring and summer. They will thrive better, therefore, standing on shelves, with air and light all round and beneath them, than when standing on a platform of soil and ashes, &c. Watering should be done in the early part of the day, and every care taken to prevent excess of moisture, either in the soil or the atmosphere.

Plants lately cut down should be placed at once under protection, so that the roots are not deluged with rains, or the young shoots that break will be apt to be gouty and unhealthy. These, when nicely broken, should be treated as the early ones, but will require less room during winter. In both cases cold water at the end of autumn and in winter should be avoided, and the soil in general should be dryish rather than soaked. The less moisture there is on the foliage the healthier it will be; even that deposited by condensation should be dried up by early air-giving before the sun's rays beat upon the plant.

Hard-wooded plants, as Heaths, Epacris, Azaleas, and Camellias, should now be under protection from cold rains and sudden frosts, if not placed at once in the greenhouse or conservatory. The plants would often stand a good amount of cold, if dry, and if the pots were not exposed. When the plants are fully exposed, and a clear night follows an afternoon of cold, soaking rain, the outside and best roots are often fatally chilled, though the plants present no signs of it in the morning; and, consequently, during the winter and spring, flower-buds drop, or refuse to open kindly, as the result of the chilling effects that the roots suffered. Continued soaking of the soil, even when not associated with much amount of cold, induces an unhealthy condition, as the extra moisture cannot at once be removed, either by drainage or perspiration through the foliage. When no other protection can be secured thus early, a canvass or calico covering stretched on rollers would be useful, to be rolled up or down at pleasure.

R. FISH.

PASSIFLORA PRINCEPS PRUNING.

"A CONSTANT SUBSCRIBER" would be very much obliged by being informed with regard to the pruning of the *Passiflora princeps*. It has made shoots five or six yards long, and there are eight or nine of them, but it has not flowered this year. It is a beautiful plant of three years' growth.

[As these long shoots have not bloomed, give all the light possible, but give no more water than will keep it from flagging; take a foot or so off their length in a week, and repeat the operation in another week. Do everything to harden the lower end of these shoots, and in winter or spring cut back each to a foot or fifteen inches in length. Allow three or four shoots to come from each in spring; and when these are two or three feet in length, they will most likely show their fine bunches of scarlet flowers.]

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 384, Vol. XXII.)

ASTEROCEPHALUS.

Nat. ord. Dipsacaceæ. Linn. Tetrandia Monogynia.

GENERIC CHARACTER.—*Involucre* simple, many-parted, or many-leaved. *Receptacle* chaffy. *Corolla* tubular, five-cleft, radiating. *Achenium* double crowned, scarious outside, and bristly within.

ASTEROCEPHALUS AGRESTIS (field). *Stem* terete, purplish at the joints, glaucous, hairy at the base; *radical-leaves* entire, rather lyrate; *stem-leaves* tri-pinnate and pinnate, with linear segments; *peduncles* hairy at the top; *involucre-leaves* linear, downy. Purple. August. Hungary.

A. AMENUS (pleasant). *Stem* branched, hairy at base; *radical-leaves* obovate, toothed or lyrate, rather hairy; *stem-leaves* pinnatifid, lobes lanceolate, acute; *peduncles* elongated with retrograde villi under the heads; *crown* twenty-nerved. Purple. June. Russia.

A. BANNATICUS (Bannatic). *Stem* branched, with white reflexed hairs at the joints and base; *radical-leaves* lyrate, hairy; *stem-leaves* rather bi-pinnate, segments linear, ciliated, and each ending with a white hair; *involucre* length of corolla. 3 ft. Pink. July. Hungary.

A. CANESCENS (hoary). *Plant* hoary; *stem* many-flowered; *radical-leaves* ovate-lanceolate, entire; *stem-leaves* pinnatifid. It is sweet-scented, and, therefore, called *A. suaveolens*. 1 ft. Pinkish-lilac. July. Hungary.

A. CAPILLATUS (long-haired). *Lower leaves* supra-decompound; *upper leaves* bi-pinnate-parted, lobes of all slender, filiform, smooth, margins rather pilose; *peduncles* very long, scabrous; *involucre* long as corolla; *crown* spreading. 2 ft. Violet. July. Hungary.

A. CAUCASICUS (Caucasian). *Radical-leaves* lanceolate-acuminate, entire, glaucous; *involucre* very villous, base of involucre elongated; *crown* short, twenty-five-nerved; *calyx* limb sessile, bristles exserted. 1 ft. Blue. June. Caucasus.

A. CERATOPHYLLUS (Buckthorn-leaved). *Stem* fistular, villous; *radical-leaves* lyrate, crenated; *stem-leaves* bi-pinnatifid, segments linear-falcate; *involucre* leaves long as flowers; *calyx* bristles five. 2 ft. Red. July. Italy.

A. COLUMBARIUS (pigeon-coloured). *Stem* branched, smoothish;

radical-leaves ovate, obtuse, crenated, petiolate, membranous, hoary with down on both sides; *stem-leaves* smoothish, pinnate-parted, segments linear, flat; *peduncles* elongated, usually trifid, downy; *crown* twenty-nerved; *calyx* bristles five, double length of crown. 1 ft. Purple. July. Britain.

A. CRENATUS (notched). *Stems* suffruticose at base, ascending; *leaves* smoothish, bi-pinnatifid, lobes entire or tri-dentate; *peduncles* long; *corollas* crenated; *crown* sub-dentate, sixteen to twenty-nerved; *calyx* limbs sessile, bristles twice length of crown. 2 ft. Flesh. August. Italy.

A. ELEGANS (elegant). *Leaves* whitish, stem ones undivided, nearly or quite entire; otherwise the same as *A. Caucasicus*. 1 ft. Light blue. S. of Europe.

A. GRAMINIFOLIUS (grass-leaved). *Stem* one-flowered, suffruticose at base; *leaves* linear-lanceolate, entire, silvery-white; *crown* twenty-four-nerved; *calyx* limb pedunculate, bristles five, long as crown. 1 ft. Blue. July. Switzerland.

A. HOLOSERICEUS (all-silky). *Plant* covered with hoary, velvety down; *lower-leaves* lanceolate, obtuse, crenated; *upper-leaves* pinnatifid, lobes lanceolate, acute, entire; *involucre-leaves* linear; *crown* twenty-nerved, third length of tube; *calyx* bristles five, twice length of crown. 1 ft. Blue. July. Pyrenees.

A. INCANUS (hoary). *Stem* villous; *leaves* hoary, pinnate-parted, lobes linear, ciliated. Hardly differing from *A. columbarius*. 1 ft. Red. July. Europe.

A. ISETENSIS (Isetsk). *Stem* much branched; *leaves* downy, lower-ones bi-pinnate-parted, upper-ones pinnate-parted; *flower-heads* and *stalks* covered with white tomentum; *crown* erect, sixteen to twenty-nerved, half length of bristles. 1 ft. White. July. Siberia.

A. LUCIDUS (shining). *Plant* glabrous; *stems* usually one-flowered; *leaves* shining, radical ones ovate-lanceolate, obtuse, crenated, stem ones pinnatifid, lobes linear acute; *crown* twenty to twenty-four-nerved, one-third length of tube; *calyx* bristles five times length of crown. 2 ft. Blue. Dauphiny.

A. LUTEUS (yellow). 2 ft. Yellow. June. Russia.

A. MOLLISSIMUS (softest). *Plant* covered with hoary, velvety down; *stem* rather branched, few-flowered; *radical-leaves* oblong, crenated; *upper stem-leaves* bi-pinnatifid, lobes linear, entire; *involucre-leaves* lanceolate; *crown* third length of tube, twenty-nerved; *calyx* bristles about four times length of crown. 2 ft. White. June. Italy.

A. NITENS (glittering). *Leaves* undivided, elliptic, serrated, shining, stalked. 1 ft. June. Azores.

A. OCHROLEUCUS (yellowish-white). *Stem* branched, rather hairy; *radical-leaves* lyrate, pinnatifid, downy on both sides; *stem-leaves* pinnate-parted, lobes linear and flat; *peduncles* elongated, slightly hairy; *crown* twenty-nerved, half length of tube; *calyx* bristles thrice length of crown. 1 ft. Yellow. July. Germany.

A. PYRENAICUS (Pyrenean). *Plant* covered with ash-coloured down; in other respects like *A. mollissimus*. 1 ft. Purple. July. S. of France.

A. RUPESTRIS (rock). 1 ft. Pink. July. Caucasus.

A. RUTEFOLIUS (Rue-leaved). *Radical-leaves* pinnate; *stem-leaves* linear; *calyx* one-leaved, five-cleft. 1 ft. Scarlet. July. Italy.

A. SETIFERUS (bristle-bearing). *Stem* branched, downy; *lower-leaves* ovate-spatulate, crenated or cut, rather villous; *upper-leaves* pinnate, segments linear-lanceolate, obtuse, the terminal segments largest; *corollas* much longer than the involucre. 2 ft. White. July. France.

A. SILENIFOLIUS (Silene-leaved). 1½ ft. Red. July. Hungary.

A. TOMENTOSUS (woolly). *Stems* procumbent, shrubby; *leaves* dentately-pinnatifid, hoary from down; *involucre* leaves bluntish; *calyx* bristles six, short, scabrous. 1½ ft. Blue. July. Spain.

A. UCRANICUS (Ukraine). *Stem* branched; *leaves* ciliated at the base, lower ones pinnatifid, lobes linear, distant, upper ones linear, quite entire; *heads* pedunculate; *base of involucre* hemispherical; *crown* twenty to twenty-four-nerved, acutely-toothed, shorter than the bristles. 1 ft. Light yellow. July. Russia.

A. WEBBIANUS (Webb's). *Plant* covered with silky, hoary down; *lower leaves* stalked, obovate, crenated; *upper-leaves* pinnatifid, lobes oblong or ovate, entire; *heads* on long peduncles; *corollas* nearly equal; *crown* four times length of tube; *calyx* bristles five, black. 6 in. White. July. Greece.

The Starheads are a large tribe of handsome-flowering plants,

as hardy as our common Scabious. Although they are mostly natives of Europe, yet they are little known, certainly not so well as they deserve. They require a deep loam and full exposure.

Propagated by seeds chiefly, and also by cuttings made of the short shoots near the stem. Sow the seeds in March, in a bed of sandy loam, in an open part of the garden. Transplant when very young, as the roots are not very fibrous, being apt to run straight down into the soil. Plant them singly afterwards where they are to bloom. They last many years without renewal, but require a mulching of manure every autumn.

By Cuttings.—When seed cannot be procured and it is desired to increase the plants of any of the species, then in the spring take off the offsets close to the stem, and plant them in sand under a hand-light in a shady place. They will root, though but slowly; and when roots are emitted take them up directly, and plant them in their final destination in fresh soil at once. All are worthy of cultivation, but more especially the dwarf-growing kinds.

(To be continued.)

T. APPLEBY.

DEATH OF DR. NUTTALL.—We have to record the death, on the 10th inst., of Dr. Thomas Nuttall, at his residence, Nutgrove, St. Helens, Lancashire, at the age of seventy-three. He was born in Yorkshire, brought up a printer, and emigrated to the United States in the latter part of the last century. He devoted his leisure time to the study of botany and geology, published the 'Genera of North American Plants,' 'The Birds of the United States,' and other works. He travelled in California, and published several papers on the shells and plants of that region. Dr. Nuttall returned to England, living at Nutgrove, an estate which was left to him on condition that he should reside on it.—(*Athenæum*.)

THE SCIENCE OF GARDENING.

(Continued from page 385, Vol. XXII.)

THE transpiration from the leaves of plants is effected through pores, or stomates, varying in number and size in every species, but being, usually, either largest or most numerous in plants inhabiting moist or shady localities. This is a wise provision; for such plants, consequently, have an abundant supply of moist food to their roots, requiring a competent provision for its elaboration and reduction from superfluous water. Those plants which are natives of sandy, exposed soils, have, on the other hand, either fewer or smaller stomates. *Crinum amabile*, an inhabitant of swamps near Calcutta, has 40,000 of the largest known stomates on every square inch of its leaves; whilst an Aloe from the exposed sands of the Cape of Good Hope has 45,000 of the smallest, and not equal in transpiring power to half the same number of stomates in the leaves of the *Crinum*. We have not been able to test their relative transpiring powers; but of two similarly constructed plants, of nearly similar size, the rate of perspiring in July, both in a temperature of 65°, but not exposed to the sunshine, was as follows. In six hours *Mesembryanthemum deltoides*, native of a dry soil, exhaled eight grains, while *Caltha palustris*, found only in marshy places, exhaled twenty-five grains. In the absence of certain information, therefore, the gardener may conclude, as a guide for his treatment of a new plant, that, if its stomates are large, it will require abundance of water.

The stomates present themselves under the form of oval pores, sometimes almost round, at others rather elongated. They are usually open in leaves which grow well, and in parts exposed to the sun; they are less open, or sometimes entirely closed, on the surfaces of leaves which are very old, or which have not been exposed to the light for some time. Their border has the appearance of a kind of oval sphincter, capable of being opened and closed. The line which surrounds this sphincter is always continuous with those which form the network of the cuticle. Under this, and in the interval between the border of the sphincter and the pore, granules of a green matter are very frequently found.

Stomates exist in a more or less distinct manner in all the foliaceous surfaces of vascular plants—viz., in leaves properly so called, in stipules, in the green bark, in the calyx, and in pericarps which are not fleshy; they are wanting in all buds, aged stems, petioles which are not foliaceous, most petals, fleshy fruits, and all seeds of vascular plants; they are also absent in all the organs of cellular plants.

The stomates are absent in several plants, on account, it seems of their manner of living. Thus—1st, They are not found either on the leaves or stems of plants which grow under water, such as *Zostera*, *Ceratophyllum*, &c.; and in those which have part of their organs under and part above water, as several species of *Potamogeton*, *Myriophyllum*, *Nymphæa*, &c., the stomates exist only in the parts exposed to the air; they are found on the leaves of *Ranunculus aquatilis* when they are raised above the water, but are wanting when they grow under it. 2ndly, The part of the leaves of bulbous plants, which is concealed in the Onion, and consequently blanched, is either entirely deprived of them, or presents some closed and imperfect ones. All truly parasitical vascular plants which are not of a green colour have no stomates either on their stems, or on the imperfect rudiments of their scale-like leaves, such as *Orobanche*, *Lathræa*, *Monotropa*, *Cuscuta*, &c.; on the contrary, those which are green, as the Mistletoe (*Viscus*), and *Loranthus*, are abundantly supplied with them.—(*De Candolle's Vegetable Organography*.)

We have hitherto only considered the perspiration which passes from leaves imperceptibly in the state of vapour; but there are other kinds thus particularised by Mr. Keith:—"It is very generally to be met with in the course of the summer on the leaves of the Maple, Poplar, and Lime tree; but particularly on the surface exposed to the sun, which it sometimes wholly covers. Its physical as well as chemical qualities are very different in different species of plants; so that it is not always merely an exudation of sap, but of sap in a high state of elaboration, or mingled with the peculiar juices or secretions of the plant.

"Sometimes it is a clear and watery fluid conglomerating into large drops, such as are said to have been observed by Mr. Millar, of Chelsea, exuding from the leaves of the *Musa arbor*, or Plantain tree; and such as are sometimes to be seen in hot and calm weather exuding from the leaves of the Poplar, or Willow, and trickling down in such abundance as to resemble a slight shower. This phenomenon was observed by Dr. Smith under a grove of Willows in Italy, and is said to occur sometimes even in England. Sometimes it is glutinous, as on the leaf of the Lime tree; sometimes it is waxy, as on the leaves of Rosemary; sometimes it is saccharine, as on the Orange leaf, according to the account of M. de la Hire, as related by Du Hamel, who, having observed under some Orange trees a saccharine substance somewhat resembling Manna, found upon further investigation that it had fallen from the leaves. Sometimes it is resinous, as on the leaves of the *Cistus creticus*, from which the resin known by the name of Labdanum is obtained, by means of beating it gently with leathern thongs, to which the exudation adheres; as also on the leaves of the *Populus dilatata*, or Lombardy Poplar, the exudation from which Ovid in his metamorphosing flights regards as the tears of Phæton's sisters, whom he transforms, as it is supposed, into this species of Poplar. Their tears were now gum. The leaves of *Fraxinella*, or *Dictamnus albus*, are also said to be often covered with a sort of resinous substance. And after a hot day, if the air is calm, the plant is even found to be surrounded with a resinous atmosphere, which may be set on fire by the application of the flame of a candle.

"The cause of this excess of perspiration has not yet been altogether satisfactorily ascertained; though it seems to be merely an effort and institution of Nature to throw off all such redundant juices as may have been absorbed, or secretions as may have been formed, beyond what are necessary to the due nourishment or composition of the plant, or beyond what the plant is capable of assimilating at the time. Hence the watery exudation is perhaps more than a redundancy of the fluid thrown off by imperceptible perspiration, and the waxy and resinous exudations nothing more than a redundancy of secreted juices; all which may be still perfectly consistent with a healthy state of the plant."

The circumstance most influential in controlling the transpiration of plants is the hygrometric state of the atmosphere in which they are growing. The drier the air, the greater is the amount of moisture transpired; and this becomes so excessive, if it be also promoted by a high temperature, that plants in hothouses where it has occurred often dry up as if burned. Mr. Daniell has well illustrated this by showing, that if the temperature of a hothouse be raised only five degrees, viz., from 75° to 80°, whilst the air within it retains the same degree of moisture, a plant that, in the lower temperature exhaled fifty-seven grains of moisture, would, in the higher temperature, exhale 120 grains in the same space of time.

Plants, however, like animals, can bear a higher temperature in dry air than they can in air charged with vapour; animals are scalded in the latter, if the temperature is very elevated; and plants die under similar circumstances as if boiled. Messrs. Edwards and Collins found Kidney Beans sustained no injury when the air was dry at a temperature of 167° ; but they died in a few minutes if the air were moist. Other plants, under similar circumstances, would perish, probably, at a much lower temperature. Yet others are still more enduring of great heat. On the banks of a thermal river in the island of Luçon, the largest of the Philippines, Sonnerat found plants of *Vitex Agnus-Castus*, together with a species of *Aspalathus*, or African Broom, growing, and as we may suppose thriving, though the roots were swept by the water at a temperature of 174° [*Voyage a la Nouv. Guinée*]; and in the thermal springs of Italy, though heated to the boiling point, certain species of *Conferve* are said to grow abundantly. The same is the case with many fishes. In the above island of Luçon, Sonnerat saw fishes frolicking in a hot spring, the temperature of which was found to be 150° ; and in the province of Quito, in South America, Humboldt saw fishes thrown up from the bottom of a volcano, together with water and heated vapour that raised the thermometer to 210° . This was quite high enough to have killed and boiled European fishes; but the fishes in question were still alive.

Seeds, as we have before stated, are still more capable of bearing great heats, and we may further illustrate this by the following statement of Professor Henslow:—

“Sir John Herschel sent some seeds of an *Acacia* from the Cape of Good Hope, to Captain Smith, of Bedford, with directions that they should be scalded, in order to secure their germination. Captain Smith having presented the Professor with a dozen of these, he subjected them to the following experiments:—Two were placed in boiling water, and left to soak for an hour, until the water had become cool; two were kept at the boiling temperature for one minute and a half; two for three minutes; two for six minutes; and one for fifteen minutes. Some of these were sown immediately, under a hand-glass, in the open border; and the rest were kept for three or four days, and then sown in a hotbed. The following are the results obtained:—

Under the hand-glass,—

One, boiled for $1\frac{1}{2}$ minute, failed.	
One „ 3 minutes came up in 14 days.	
One „ 6 „ „ „ 13 „	
One, not steeped at all, did not germinate.	

In the hotbed,—

One, boiled for $1\frac{1}{2}$ minute, came up in 8 days.	
One „ 3 minutes „ „ 7 „	
One „ 6 „ „ „ 7 „	
One „ 15 „ „ „ 13 „	
Two, in boiling water, left to cool . 9 „	
Two not steeped. . . . 21 „	

“We cannot draw any decided inference from the single seed which was boiled for fifteen minutes having been more retarded than the rest, as it might have been a bad specimen; but it seems very clear, that the heat to which these seeds were exposed must have acted as a decided stimulus to their germination; whilst it is a very singular fact that they should not have been completely destroyed by it.”

In pursuance of this subject, at the Bristol Meeting of the British Association, Mr. Hope mentioned a practice, common in some parts of Spain, of baking corn to a certain extent, by exposing it to a temperature of 150° , or upwards, for the purpose of destroying an insect by which it was liable to be attacked. Dr. Richardson mentioned that the seeds sold in China for the European market were previously boiled, for the purpose of destroying their vitality, as the jealousy of that people made them anxious to prevent their exportation in a state fitted for germination. Upon sowing these seeds, he had, nevertheless, observed some few of them were still capable of vegetating.—(*Edin. New. Phil. Journ.*, vol. xxi., October, 1856, p. 333.)

Though growing plants can bear an elevated temperature without injury, a very different effect is produced upon them by even a lower heat, after they have been separated from their roots. This has to be borne in mind in the drying of potherbs, which, though it is a process very simple, and very important for the winter's supply that it should be conducted correctly, is usually more neglected and more thoughtlessly practised than any other in the varied range of the gardener's duties. To

demonstrate this will only require to have pointed out how it ought to be managed. The flavour of almost every potherb arises from an essential oil which it secretes, and this being in the greatest abundance just previously to the opening of its flowers, that is the time which ought to be selected for gathering. Potherbs ought to be dried quickly; because, if left exposed to winds, much of the essential oil evaporates, and mouldiness occurring, and long continuing, destroys it altogether, for nearly every plant has its peculiar mucor (mould), the food of which is the characteristic oily secretion of the plant on which it vegetates. A dry brisk heat is therefore desirable. The temperature should be 90° ; for if it exceeds this, the essential oils are apt to burst the integuments of the containing vessels, and to escape. Forty-eight hours, if the heat be kept up steadily, are sufficient to complete the process of drying. The leaves, in which alone the essential oils of potherbs reside, should then be carefully clipped with scissors, not crushed, from the stalks, and stored in tightly-corked wide-mouthed bottles. Each will thus preserve its peculiar aroma, not only through the winter, but for years, and be infinitely superior to any specimens producible in the forcing department, for these are unavoidably deficient in flavour.—J.

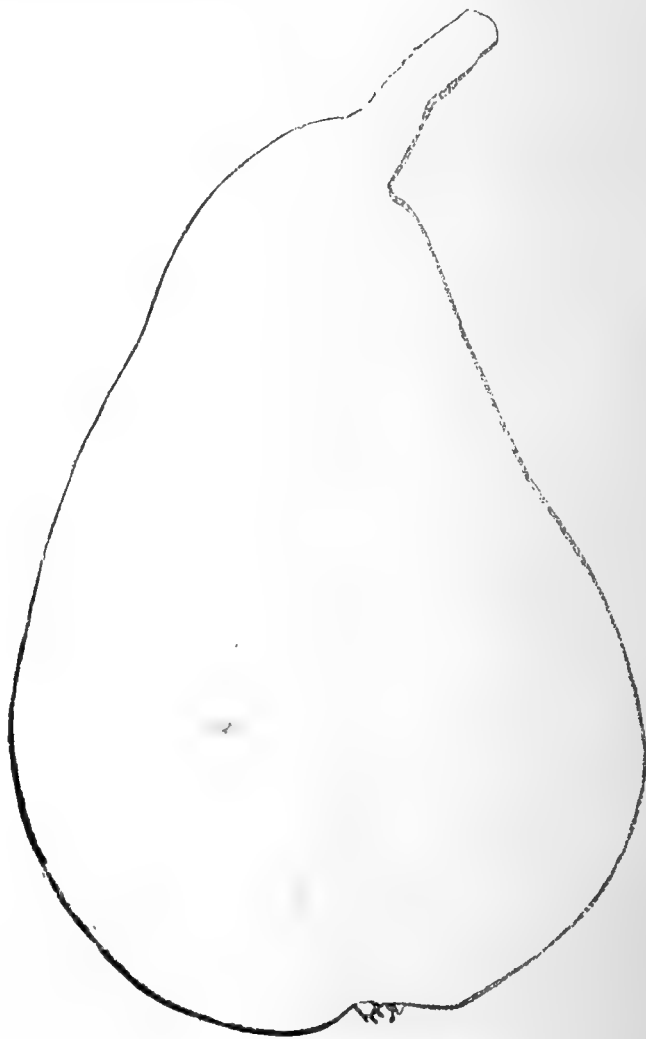
(To be continued.)

THE FRUITS AND FRUIT TREES OF GREAT BRITAIN.

No. XXIII.—DUCHESS OF ORLEANS PEAR.

Synonyme—*Beurré St. Nicholas*.

THIS excellent pear is one of the seedlings raised by Dr. Van Mons, but which it was not his privilege to see; it having fruited for the first time in 1847.



The fruit is of a good size, being generally three inches and a half long and two inches and a half wide. It is of a pyriform or oblong-obovate shape, and tapers right into the stalk.

Skin at first of a fine bright green colour, which becomes yellowish at maturity. It is strewed all over with mottling and dots of grey russet, and on the side next the sun it assumes a reddish tinge.

Eye small and open, with erect rigid segments, and placed in a slight depression, which is somewhat undulating and furrowed round its margin.

Stalk three quarters of an inch long, stout, and inserted without depression.

Flesh white, fine-grained, tender, melting, and juicy. Juice abundant, sugary, and most agreeably perfumed.

This is a most delicious pear, having the flavour of Gansel's Bergamot, and ripens in October.

The tree is a good bearer, succeeds well either on the pear or the quince stock, and is adapted either for standard, pyramid, or espalier culture.—H.

NO. XXIV.—VAN MONS LÉON LE CLERC PEAR.

WHETHER as regards its great size, or the great merit the fruit possesses, we cannot but consider this pear as one of the most valuable we have for autumn use. It was raised by M. Le Clerc, of Laval, and named in honour of his friend, Dr. Van Mons; and when he sent it out to the world, it was his desire that his own name should continue with that of his friend in connection with this fruit. Notwithstanding, however, the name is gradually contracting into "Van Mons" alone.



Fruit large, oblong, pyramidal, undulating in its outline, rounded at the apex, and blunt at the stalk.

Skin green at first, but changing as it ripens to a dull yellow colour, strewed with russet dots and tracings of russet.

Eye open, with long, flat acuminate segments, and set in a shallow basin.

Stalk an inch and a half long, curved and inserted in a shallow cavity.

Flesh yellowish-white, tender, buttery, melting, and very juicy. Juice rich, sugary, and with a fine delicate aroma.

This is a remarkably fine and handsome pear, ripening in October and November. The tree is quite hardy, but on account of the great size of the fruit, is better grown as a dwarf or espalier than as a standard.—H.

ENOTHERA MACROCARPA CULTURE.

I HAVE twenty strong plants of *Enothera macrocarpa*; they have flowered well, and are still very full of bloom; and they are all this year's plants. I am anxious to preserve the old plants, and also to increase my stock from them. You will oblige me by saying if they may remain in the open ground during the winter without protection; also, the season for and manner of propagating them.—R. H.

[The *Enothera macrocarpa* is as hardy in dry ground as Sea-kale, and is one of those useful plants which do better the older they are; but is not a good one to move from bed to border, or from border to bed. No plant is more hurt by transplanting after it is three years old. It is best not to have any mulching protection over it in winter. No plant is more easy to increase just at the proper time—say from the middle of April to the middle of May, according to the earliness or lateness of the season. The crown of the plant then throws up many sprouts, or young shoots, and when they are from two to three inches long cut them off at a joint; *do not slip them off*, as that would lessen the eyes next year; and it has no eyes, and never makes one but at the very crown. These young tops root just as fast as *Verbena* under the same influences; but any hotbed will do to root them without a bell-glass; but a nice cutting-bed, or one for choice seeds and seedlings, is the best, as it is not so hot, and is kept more close than a Cucumber-bed.]

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 389, Vol. XXII.)

PEARS.

BEZI D'HERI (*Bezi Royal*; *Besidery*).—Fruit medium sized, roundish. Skin thin, smooth, greenish-yellow, with a tinge of red next the sun. Eye open, and set in a small round basin. Stalk slender, an inch and a quarter long, inserted without depression. Flesh white, fine-grained, crisp, rather dry, and with somewhat of a fennel flavour. In use from October to December.

This is one of the best stewing pears; and the flesh is generally smooth and well-flavoured when cooked.

Bezi de Landry. See *Echassery*.

BEZI DE LA MOTTE (*Bein Armudi*; *Beurré Blanc de Jersey*).—Fruit medium sized, roundish, inclining to turbinate. Skin yellowish-green, thickly covered with brown russet dots. Eye small and open. Stalk an inch long. Flesh white, fine-grained, buttery, melting, with a sweet and perfumed flavour. Ripe in October and November.

Bezi de Quessoy. See *Bezi de Caissoy*.

Bezi Royal. See *Bezi d'Heri*.

BEZI VAET (*Bezi de St. Waast*; *Bezi de St. Wat*).—Fruit above medium size, roundish, very uneven on its surface, being bossed and knobbed, the general appearance being that of a shortened Chaumontel. Skin greenish-yellow, very much covered with brown russet; and on the exposed side entirely covered with russet. Eye open, with erect segments placed in a deep and uneven basin. Stalk three quarters of an inch long, stout and somewhat fleshy basin. Flesh yellowish-white, crisp and breaking, very juicy and sweet, with a pleasant aroma, the flavour being very much like that of the Chaumontel.

A first-rate dessert pear, ripe in December and January. Though not richly flavoured, it is so juicy and refreshing as to be like eating sugared ice.

BISHOP'S THUMB.—Fruit large and oblong. Skin yellowish-green, covered with large russet dots, and with a rusty red colour on one side. Eye small and open, with long reflexed segments. Stalk one inch long, fleshy at the base, and obliquely inserted. Flesh greenish-yellow, melting and juicy, with a rich sugary and vinous flavour.

An old-fashioned and very excellent dessert pear, ripe

in October. The tree is hardy, an abundant bearer, and succeeds well as a standard.

Black Achan. See *Achan*.

Black Bess. See *Achan*.

Black Beurré. See *Verulam*.

BLACK WORCESTER (*Parkinson's Warden; Pound Pear*).—Fruit large and obovate. Skin green, entirely covered with rather rough brown russet, and with a dull red tinge next the sun. Eye small and open. Stalk an inch long. Flesh hard, crisp, coarse-grained, and gritty.

A stewing pear, in use from November till February.

BLOODGOOD.—Fruit medium sized, turbinate, inclining to obovate. Skin yellow, strewed with russety dots and russet network. Eye open, with stout segments. Stalk obliquely inserted. Flesh yellowish-white, buttery and melting, sweet, sugary, and aromatic.

An American pear of good quality, ripe early in August. The tree bears well, and, being so early, is well worth growing.

Bô de la Cour. See *Conseiller de la Cour*.

Bolivar. See *Uvedale's St. Germain*.

Bonaparte. See *Napoléon*.

Bon Chrétien d'Amiens. See *Catillac*.

Bon Chrétien d'Espagne. See *Spanish Bon Chrétien*.

BON CHRÉTIEN FONDANTE.—Fruit large, oblong, and regularly formed. Skin green, covered with a considerable quantity of russet, and marked with numerous russety dots on the shaded side, but covered with dark brownish-red next the sun. Eye small and closed. Stalk three quarters of an inch long. Flesh yellowish-white, very melting and very juicy; the juice rather thin, and not highly flavoured, but very cool, pleasant, and refreshing.

A very nice pear, ripe during October and November. The tree bears well as a standard.

Bon Chrétien d'Hiver. See *Winter Bon Chrétien*.

Bon Chrétien Napoléon. See *Napoléon*.

Bon Chrétien Nouvelle. See *Flemish Bon Chrétien*.

Bon Chrétien de Rans. See *Beurré de Rance*.

Bon Chrétien de Tours. See *Winter Bon Chrétien*.

Bon Chrétien Turc. See *Flemish Bon Chrétien*.

Bon Chrétien de Vernoise. See *Flemish Bon Chrétien*.

Bon Papa. See *Vicar of Winkfield*.

Bonne d'Avranches. See *Louise Bonne of Jersey*.

Bonne Ente. See *White Doyenné*.

BONNE D'EZÉE (*Belle de Zées; Bonne de Zées*).—Fruit large, pyramidal. Skin straw, with a tinge of green, and thickly marked with traces of brown russet. Eye open, with long linear segments. Stalk slender, an inch long, and obliquely inserted. Flesh white, coarse-grained, and inclining to gritty, half-melting and juicy, with an agreeable perfume.

This is only a second-rate pear, the texture of the flesh being coarse. Ripe in October.

Bonne de Kienzheim. See *Vallée Franche*.

Bonne de Longueval. See *Louise Bonne of Jersey*.

Bonne Louise d'Avranches. See *Louise Bonne of Jersey*.

Bonne Malinaise. See *Winter Nelis*.

Bonne de Malines. See *Winter Nelis*.

Bonne de Noël. See *Fondante de Noël*.

Bonne Rouge. See *Gansel's Bergamot*.

Bonnissime de la Sarthe. See *Figue de Naples*.

De Bordeaux. See *Bezi d'Heri*.

Bosc Sire. See *Flemish Beauty*.

Boss Père. See *Flemish Beauty*.

Bouche Nouvelle. See *Flemish Beauty*.

Braddick's Field Standard. See *Marie Louise*.

Brilliant. See *Flemish Beauty*.

Brocas' Bergamot. See *Gansel's Bergamot*.

BROOMPARK.—Fruit medium sized, roundish-obovate. Skin yellow, sprinkled with cinnamon-coloured russet. Eye small, dry and horny, set in a slight depression.

Stalk an inch long. Flesh yellowish, melting, juicy and sugary, with a rich musky flavour.

An excellent dessert pear, ripe in January. The tree is very hardy and vigorous, an excellent bearer, and succeeds well either as a dwarf or standard.

BROUGH BERGAMOT.—Fruit small, roundish-turbinate, tapering into the stalk. Skin rough, being entirely covered with brown russet, except in patches where the green ground colour is visible; on the side next the sun it is tinged with dull red. Eye open, with short-stunted segments. Stalk half an inch long, not depressed. Flesh yellowish-white, rather coarse-grained, but very juicy and sugary, with a rich and highly perfumed flavour.

An excellent pear for the north of England, ripening during December.

BROUGHAM.—Fruit medium sized, roundish-obovate, inclining to oval or ovate. Skin rather rough to the feel, yellowish-green, and covered with large brown russet specks. Eye clove-like, full of stamens, set in a shallow and plated basin. Stalk an inch and a quarter long, and slender. Flesh yellowish-white, tender, and juicy, but somewhat mealy, and having the flavour of the Swan's Egg.

A second-rate pear, ripe in November. The tree is a great bearer.

(To be continued.)

SEASON FOR PRUNING—IVY INJURIOUS TO TREES.

BEING fond of trees, shrubs, &c., and anxious to do what is right, I seek your advice in the two following cases, where "Doctors differ:"—1st. Pruning (one of the first things coming under the notice of one engaged among trees). I take up James Brown, Forester, Arncliffe, who says, "all pruning operations should be done in the spring or summer months. Trees pruned in May and June heal up their wounds much faster than those done in July or a week in August." I take up THE COTTAGE GARDENER, Vol. XIV., p. 374. Mr. Appleby says, "Never prune in spring." Both are speaking of the same kind of pruning—that is, pruning forest trees. Now, Mr. Editor, which authority am I to follow?

2nd. In a very recent number of THE COTTAGE GARDENER, No. 562 (I believe), I find a statement that Ivy invariably kills the trees on which it is allowed to grow. Now, Mr. Waterton (and few closer observers of Nature exist), in pp. 72 and 73, second series of his "Essays," holds a totally different opinion, and maintains there is not the slightest injury inflicted by the Ivy. Again, Mr. Editor, which authority is right?—SILAS FIXINGS.

[Mr. Brown, one of our best writers on forestry, is quite right in saying that all pruning should be done in the earlier summer months, and for the reason that new bark is deposited only in the growing months as the sap descends; but he does not tell us to prune whilst the sap is rising in February or March—a season that Mr. Appleby warns us against—and for this good reason, that when the sap is rising every wound causes it (the sap) to flow out at such wounded place, to the manifest waste of the life-juice of the tree. You may easily prove this in the ensuing spring by cutting off a branch of any of the following trees:—Birch, Sycamore, Horse-Chestnut, Spanish Chestnut, Elder, Poplar, and Vine. It is true, Oak and Ash do not bleed much, but then the wounds are exposed to the cold bleak spring blasts, and are certainly injured thereby. Also, any of the Coniferous tribe, pruned in early spring, bleed prodigiously, to the great injury of the trees: We cannot see that these two doctors differ in this important operation.

Again, in your second query, you are mistaken in supposing the writer in THE COTTAGE GARDENER asserts that Ivy kills a tree immediately. It takes many years before that beautiful parasite kills a tree; but that it eventually does so is a well-known fact to every forester in the kingdom. Very lately Mr. Appleby saw a number of ancient Scotch Firs at Carr Head, near Skipton, in Yorkshire, at the last gasp of life, caused entirely by being smothered with Ivy. We have no doubt many such like instances throughout the kingdom might be found: where the Ivy has

been permitted to obtain the upper hand, the trees have been killed by it alone; consequently, we cannot help thinking, with all due respect, that Mr. Waterton is mistaken on this point.]

LAPAGERIA ROSEA CULTURE.

I WANT some advice about that exquisite climber, the *Lapageria rosea*. I saw it planted in a conservatory border at Mr. Veitch's, of Chelsea, and I have also seen it blooming beautifully over a trellis in a pot about twelve inches wide, and the same in depth.

I have read what Mr. Beaton says at pages 126 and 226, of the seventeenth volume, and I confess I do not see how the drainage he speaks of as being so necessary is to be had in a pan two feet wide and three inches deep. I bought lately a "strong seedling" plant, which I find as follows:—It is in a pot about six inches wide, and seven inches deep, with fully two inches of crock drainage, and the soil is almost entirely black peat. On turning out the ball, two whitish roots only, about one-eighth of an inch thick, without any fibrous appendages (something like the roots of the *Agapanthus*) are visible, and they are not coming to the surface (as your description above referred to seems to say), but have passed through the drainage to the bottom of the pot.

The plant consists, above ground, of three stems; the first is very slender, about four inches long, without leaves, and brown at the tip; the second, somewhat stouter, is supported by a stick, and may be nearly three feet in length. The point of the shoot appears to be still growing, but the leaves nearer its base are turning brown. The third is just pushing through the soil—it is, perhaps, an inch high, but thicker than the other two put together.

I cannot plant it out, as my conservatory has no borders; but I can give it a north rafter, or a south rafter, or a place on the back wall (south aspect), or a trellis of any kind over the pot. Which do you recommend? Shall I repot now, or in the spring, and what size of pot or pan shall I use?

A day or two since I met with the *Scolopendrium*, of which I sent you a frond lately, in the collection of a friend. It was labelled *Suprasoriferum*, and I find that name in some catalogues, but not in Sim's.—A COUNTRY SUBSCRIBER.

[The *Lapageria* you refer to was one that was planted against the back wall of the old half-hardy Fern-house at Kew. The house was altered, and the plant had to be taken up and potted. The natural way of the roots suggested the flat shallowpan; and flat pans of any size can be drained as freely as a cinder-sifter. You saw the one at Mr. Veitch's, which we described the week it was planted, and you might have told us how it did and how it looked. The best *Lapageria* we have seen is the one we described three or four years since in the Heath-house at the Pine Apple Place Nursery; it was a planted-out plant. No doubt but some of our best plant growers will do this plant in pots, but second-rate gardeners never will; and a child might grow it in a border in any side or aspect in a cool house. But for the first three or four years of good growth *Lapageria* may be grown in a pot as well as in a border, as some extra heat can be thus given it for two or three months in the spring, as we have reported from the nurseries. Plants of *Lapageria rosea*, which are as hardy, if not more so, than a Cape Heath, were reported by Mr. Beaton last spring as being in the stove along with *Alamandas* in the Messrs. Fraser's Nursery, at Lea Bridge—the best plant growers in the trade. The plant referred to by our correspondent is still in active growth; a young shoot just rising. There are some few fast-growing climbers, which, if they were in this condition at the beginning of October, ought to be fresh potted even then, but they are few indeed. On the other hand, this *Lapageria*, as compared with our hedge Bindweed, is an extremely slow grower; besides which, its roots are very different in their power and formation from those of most other climbers, save such as are related to *Smilax*. Indeed, *Lapageria* is a kind of extreme southern Sarsaparilla, with the flowers of the most gorgeous of the Peruvian Bomareas; therefore, very distinct in its natural habits from all ordinary climbers. The plant, therefore, should not be potted under any circumstances later than the middle of August, nor be kept in artificial heat later than the middle or end of September. In ordinary cases, however, this plant ought not to receive artificial heat after the summer sets in warm enough to dispense with fires in stoves and drawing-rooms. Keep the frost from it in winter, and at the end of

February introduce it into stove heat, if there is a stove; and, after six inches of fresh growth are made in heat, pot it afresh, if it require it, and keep it in this heat till the end of May, by which you will gain two more months to the summer as it were. A north rafter in a conservatory-house will suit it best; but as to pole, pillar, trellis, or chains, they are all the same to all climbers. As to the size of the pot or pan, that depends entirely on the quantity of roots. One would need to be endowed with the spirit of prophecy to be able to tell the size of a pot, pan, tub, box, vase, or basket, for any plant without seeing it turned out of the pot it is in. Once it is fairly in good growth, *Lapageria rosea* requires an enormous deal of water—say four times more than a *Passion-Flower*.

What an odd idea that climbers cannot be planted out in conservatories that have no borders, but are paved all round! Why, that is just the very best kind of house in which to plant out all climbers and trainers—as *Camellias*, *Oranges*, &c.

There are about seventy varieties and sub-varieties of *Scolopendrium vulgare*, and your specimen might have been one of them; but it was *S. vulgare* and nothing else.]

HEATING BY COAL *versus* GAS.

THE writer is desirous of knowing the comparative cost of heating a water apparatus by gas and coal. The house is thirty feet by sixteen feet, and his object is to keep up a gentle heat night and day during the winter and spring months. From the position of the house a smokeless fire is desirable.

What are the best varieties of the *Clematis* and *Passiflora* tribe for a conservatory?—A SUBSCRIBER.

[For a house of the size specified, there can be no question that coal would be the cheapest, unless the gas were obtained on peculiarly easy conditions. The smoke could be avoided being seen by lighting the fire early in the morning, and late in the afternoon, and using broken coke instead of coal for fuel. There would hardly be any smoke after the fire was fairly lighted, the fire clear, and the damper placed in, so as to secure a small amount of draught. A small hole below the damper in the chimney, or even a small opening in the furnace door, would help to consume the little smoke made.

Clematis Sieboldii, and *Cœrulea grandiflora*, and *Passiflora cœrulea*, *racemosa cœrulea*, *Colvillii*, and *edulis*. The flowers of the latter are not showy, but the fruit is considered a delicacy by many.]

TO CORRESPONDENTS.

GLAZED UPPER SURFACE OF LEAVES (*Young Botanist*).—The glazing is a resinous substance soluble in alcohol, but not in water; consequently it is unpenetrated even by the heaviest rains; such glazing is not needed usually on the under surface.

TREE FOR MIDDLE OF LAWN (*An Old Subscriber*).—Without knowing the arrangement of the ground, the surrounding trees, the soil, and the place where, no one can give reliable advice upon such a point. Added to which, tastes differ so much in their admiration of forms. Some admire upright growths, others drooping growths. We are of the latter class, and if only one tree were admissible, should plant a *Cedrus deodara*; but, if not impossible should prefer a group of three, with some *Laurustinus* around them.

SEEDS OF PAMPAS GRASS (*F. E. C.*).—The Pampas Grass is one of those which have the sexes in different plants. We know that the two sexes are in this country; but we doubt very much whether, supposing the two were brought in contact at the right time, our winter season, or our late autumn weather, would allow the seeds to ripen. At all events, an acre of Pampas Grass plants all of one sex will not furnish a seed.

TWENTY EXCELLENT ROSES (*F. May*).—*Hybrid Perpetuals*:—1, Général Jacqueminot; 2, Géant des Batailles; 3, William Griffiths; 4, Souvenir de Reine de l'Angleterre; 5, Souvenir de Leveson Gower; 6, Lord Raglan; 7, General Simpson; 8, Baronne Prévost; 9, Auguste Mie; 10, Madame Laffay; 11, Madame Masson; 12, Jules Margottin; 13, Duchess of Sutherland; 14, Triomphe de l'Exposition. *Bourbon*:—15, Souvenir de Malmaison; 16, Armosa; 17, Queen of Bourbons. *Yellow*:—18, Gloire de Dijon, tea; 19, Ophir; 20, Devoniensis. 19 is the yellowest and best bloomer as a standard.

VARIOUS (*A Constant Reader*).—Your plant is *Sagina procumbens*, or Procumbent Pearlwort, and would not do as a substitute for *Spergula pilifera*. The ventilation of your greenhouse is not sufficient, having two windows opening in front, and only two small openings at the back near the top. All the windows in the front, and four such openings at the back, are required. Even then, and with the door open, as the house has a south aspect, it will often be too hot in summer.

HERBACEOUS PÆONIES (*Paul Ricaut*).—Herbaceous Pæonies do not and will not all bloom at once. The end of October is the best time in all the year to make a new plantation of herbaceous Pæonies; and after ten days of fine weather in March the next best time. The third best time is from October to April; and the fourth best is when the tops are six inches high in growth. There are six very good ones and no more, unless you take seedling varieties, of which we know very little, and we never recommend

what we do not know to be superior. Best white :—*Whitlegi* and *Blanda*. Best rose :—*Rubescens* and *rosea*. Best crimson :—*Humei*, *Potsii*, and *Corallina*. The next best are *Fragrans*, *Pallasii*, *Baxteri*, and *Silurica*. The third best are *Tartarica*, *carnescens*, *fimbriata*, and *tenuifolia*.

BUYING BULBS (Rose).—All the bulbs you name can be had from any of those firms you see advertise in *THE COTTAGE GARDENER*. The *Liliums* or *Japan Lilies* will be dry in November, which is the best time to buy them. They are fine plants and easy to bloom. *Tritoma uvaria* at the same time; but the *Tritonia aurea*, and other *Ixia*-like *Tritonias*, should be had now dry and be potted at once. All the *Amaryllises* are now in growth; but, like *Hyacinths* and *Tulips*, they keep dry all through October from the end of May. *Vallotta* is an evergreen *Amaryllis*, and the very easiest of them to manage. The best *Cyclamens*—the spring ones—are repotted in August, but have not yet grown much to hinder them from carriage. Get as many kinds of the *Persicum* and *Atkinsii* breeds as you can, and you will never be without a store of them for no trouble at all worth mentioning: but buy also *Ixia viridiflora*, the finest of all small bulbs; *Ixia crateroides* and *maculata*, *Sparaxis tricolor* and *tricolor grandiflora*; and a few of the *Guernsey seedling Sparaxes*. A root or two of *Amaryllis formosissima*, or *Sprekelia formosissima*, would give splendid bloom in May, if treated exactly like *Regent Potatoes*—potted in March or April, bloomed in April or May, planted out of doors after blooming, and stored like *Potatoes* all the winter.

ARAUCARIA IMBRICATA'S LEAVES SPOTTED BROWN (W. V.).—We cannot tell the cause of these spots; but the probability is that now, after six years' growth, the roots have descended into a subsoil unfavourable to the *Araucaria*.

SCARLET GERANIUMS (Jane).—The petals were shed, and consequently we could not decipher the names. They are the worst of cut flowers to send for recognition.

NEW VERBENA (N. B. J.).—Your new lavender or light lilac *Verbena* is a fine flower, a new colour, and the sweetest of them since *teucrioides* appeared and disappeared. If the habit is good, and if the colour will stand the sun, it will make a charming front bed.

NAMES OF PLANTS (J. F. Armstrong).—We have but very little doubt about your No. 1 being the *Cyclamen vernum*—that is, as nearly as we can judge from the solitary leaf and flower, which agree with that of *vernum*. If a plant of it could be spared, this would settle the question. No. 2 is the *Cyclamen hederifolium* of most botanists (see *Botanical Magazine*, 1001). The same plant is called *C. Europæum* in *Eng. Bot. Tab.* 548. Again, the same plant is called in the *Bot. Reg. N.S.*, in the year 1838, *tab. 49*, *Cyclamen Neapolitanum*. This plant is called a doubtful native of Britain, but has been found abundantly in a wood on Alderdown Farm, in the parish of Sandhurst, in Kent, on a poor, yellow, sandy, loamy soil, with flowers both red, white, and purple (*Tr. of Linn. Soc.* vol. xiii. page 616). It has been found in many other places, though some of them are considered doubtful, being near gardens. We have two plants, one white, and the other reddish-pink and white, which have remained in the same spot for the last twenty years, which are now just coming into flower, and fine specimens they are at this time. They stand in so suitable a situation that they are not in the way of anything during the whole year. About a gallon of fresh mould is put round and over their crowns every year at the beginning of September as a top dressing. Numbers of seedlings come up annually of their own accord from the dark kind, but we never have observed any seedlings come up from the white one. Your other plant, No. 3, is unknown to us. It appears to us to come near to a *Lobelia*, one of the dwarf trailing kinds, but we should like to have a larger specimen. (*J. R. R.*)—Your plants are :—1, *Cystopteris fragilis*, the Brittle Bladder Fern; 2, *Lastræa thelypteris*, the Marsh Buckler Fern. The Jasmine is the common white *Jasminum officinale*. The greenish-yellow flowering shrub is the *Bupleurum fruticosum*; and the *Clematis*, from the tiny bit sent, we take to be nothing more than the common Traveller's Joy, or *Clematis vitalba*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

SEASONABLE HINTS.

WE know no method of being useful to our readers more practical than by following up the weather and the seasons with a sort of calendar of operations. We gladly do so, because the time is coming when reports of Shows will monopolise our space. The nights are now getting longer, and they are cold. The grass is frequently covered with white frost in the morning. If, therefore, you have small chickens, let them remain covered up till the sun is high enough to give warmth. Choose a dry, sheltered spot, where the grass is short, or if the rip in which the hens and chickens roost can be put on a dry, dusty place, so much the better. When the rain drives, be careful that the back of the rip is turned to it, that it may afford shelter to the brood. If the chickens set up their feathers, and seem to suffer from wind and wet, give them bread and ale three times per day. Feed the hen well, as her warmth becomes more necessary every day. The chickens get larger, and the nights get colder. This is for the small ones; the larger do not require the same care, but they want better feeding than they did some time since. Above all, young and old, they require to be fed as soon as possible after daybreak, that they may not meet the chill air on an empty stomach. It is also most essential that they have shelter and covert at hand.

We almost accuse ourselves of confining our notice of poultry to that intended for exhibition, forgetful that to supply the table is quite as important. During the next three months, hatching for this purpose should be attended to. Game supplies the place of fowls till February. Then, in a country-house, the

latter are wanted, and are too often wanting: The reason is, no winter chickens were hatched. It is certain that, of late years, November and December have been better months for rearing chickens than January, February, or March. Exhibition birds must, of course, be hatched after January; but those for the table must be produced during the winter. There is little difficulty if the hens and chickens are kept under a shed open in front, and having an earth floor covered with dry dust.

We have recently given full directions for feeding and rearing them; we will only repeat that they should be carefully and warmly covered up every night, and fed after dark, and before daylight. We are aware in many counties winter chickens are almost deemed impossibilities; but it should always be borne in mind, the immense number of chickens consumed in London during the spring are hatched and reared in the winter. In Surrey, Sussex, parts of Kent, and Hampshire, it is thought little more difficult to rear winter chickens than summer ones.

Formerly much difficulty was experienced in getting broody hens, but *Cochins* have removed that; and in yards where that breed is kept, there are always sitting hens. If those of our readers who have suffered the lack of chickens in March, April, and May, will take our advice, we will promise them success, and spring chickens for their tables.

POULTRY AT THE NORTHAMPTONSHIRE AGRICULTURAL MEETING.

WELLINGBOROUGH, SEPT. 29th.

WE use the above heading because we have not to treat of a Poultry Show only, but of an exhibition in its proper place, when it is surrounded by all the other occupants of the farmyard or the cottage. This Society, one of the most prosperous of its class, is gradually growing in importance every year, and, therefore, keeps itself open to invitations from those towns most anxious for its presence, and most desirous to deserve its visit by offering special prizes. Thus the good town of Wellingborough gave £30 to be competed for, and the entire sums offered as premiums for cattle, poultry, fruit, flowers, &c., amounted to £600. Whether it is that everything connected with the culture of the soil is popular in England, or whether, like others, the good people of Northamptonshire love a holiday, we cannot say; but we do not hesitate to affirm that, except at Birmingham and the Royal Agricultural, we have never seen such crowds of people. The worthy reception of this Society, which changes its trysting place every year, was begun last year at Towcester, and Wellingborough eclipsed it entirely. First, they had the band of the Coldstream Guards. Next, they had the prize band—an excellent local one. We asked a humble but enthusiastic Wellingborougher, what the prize band was. He said it had taken many prizes in competition with others, and would have had another, only some of the performers had been disqualified as amateurs, because they had belonged to the Militia band; but it was, nevertheless, the best band in that county, or a good many more. Then there were the Wellingborough drums and fifes, all boys. The streets were decked with evergreens, and the houses decorated with flags. Most of the shops were shut up, except those that dealt in toys or refreshments—things likely to be wanted by visitors. It is wonderful how people take advantage of every circumstance that can help business in this trading country. In the streets leading to the Show-yard, we almost fancied ourselves at Greenwich when we saw the announcements in the windows that parties could be accommodated with tea, hot water, bread and butter, &c. Then, though cockneys as we are, we almost fancied ourselves at Harewood Gate, in Oxford Street of the olden time, when we saw the walls hung over with a tempting display of ballads. Songs written for the occasion were sung by couples all over the town; and if any of our readers take an interest in such music, we will tell them as the result of observation, that it takes ten minutes vocal performance to establish a small audience, a quarter of an hour to effect a sale; but after that, if the lungs show no fatigue, a good trade may be depended upon. We have never seen such a merry day, so much enthusiasm in the cause, or such exemplary good humour and behaviour: as one of the attendants on an omnibus to the station said, "He had made the old 'bus do more than she had ever done in a day before in her life, or ever would again."

In noticing the poultry we must premise that it is a local Show, and that the great encouragement is given to breeds suitable for farm purposes. Fifteen entries of *Dorkings*; of these eleven

were thought worthy of distinction, and were named accordingly in the prize list. The four prizes went to Rev. F. Thursby, Mr. John Shawe, Rev. F. Thursby, and Mr. Harrison. All these were of very high merit, and many of the commended deserved prizes. Mr. Tatham took the prize for a Single Cock with a very fine bird. *Spanish* were excellent. Mr. Wright was first with a beautiful pen; Mr. Shawe second; and the Rev. Mr. Thursby third. Four pens in this class were highly commended. The *Game* fowls were very good; but the chickens were not dubbed, and the old birds that had been operated on, were badly done. This is a great disadvantage, and is noticed in these days when this class is shown in such perfection. Messrs. Burnaby, Shefford, and Freestone, took the prizes; and Mr. Shefford that for a Single Cock. Mr. Tatham took both prizes for *Cochin Chinas*. We are bound to notice two pullets in pen 300. They were the best we have seen this year. The Rev. Mr. Thursby took a prize for *Brahma Pootras*. We do not approve of the next class. Two prizes given for cross-bred fowls. Both were taken by chickens between the Dorking and *Brahma*. They were very large and handsome birds; the pullets had lost symmetry as compared with pure Dorkings, but one of the cocks was the deepest bird we ever saw, taking him from the back to the edge of the breast-bone.

Aylesbury Ducks were unusually good: Mr. Shawe took first and second prizes; Mr. Harrison the third. Some of Mr. Shawe's ducklings weighed $7\frac{1}{2}$ lbs. each. Mr. Rose was successful in Rouen Ducks, and Mr. Iveston in Muscovy.

The Show ended with a prize of £3, added to a sweepstakes of 10s., for the three best pens of poultry. This was awarded to the Rev. Mr. Thursby, hard run, however, by Mr. Shawe.

It will be seen the entries were of Dorkings, Spanish, Game, *Brahmas*, *Cochins*, and Aylesbury Ducks; and the improvements we have noted from year to year were on this occasion fully maintained. We do not believe the awards would have been materially altered had the competition been open to England.

Mr. Baily was the Judge.

CHICKENS WEAKENED BY WARMTH.

I HAVE a flock of Brown-red Game chickens eighteen weeks old, bred from a first-rate strain. Most of them are very promising birds in all points except the feather, which is too long and soft. The first three months they sat in a very warm place. Would that affect their feathering? and can anything be done to improve them?—A YOUNG AMATEUR.

[The very warm place in which the chickens were for a long time kept may have had much to do with their soft feathers; feeding, probably, still more. Heating food, such as hempseed, canary, &c., all soften plumage. Accustom them by degrees to harder living. If it is safe let them roost out of doors, or in an open shed. Feed them on ground oats; give them some old beans and a few peas. The change must be made gradually; and green food be given plentifully.]

NOTES ON THE CRYSTAL PALACE POULTRY SHOW.

I AM a lover of good open criticism, and, therefore, read the remarks of Mr. B. P. Brent with interest; but I cannot help laughing at his description of two cocks in the class for a Spanish cock and pullet. I have been for years a large breeder of Spanish fowls, and can assure him, that which he terms "the curved tail-coverts" are very common, and generally belong to the best among my pullets. I also much admire the "sickly look" he mentions. Surely Mr. Brent ought to know that in Spanish nothing is so difficult as to substitute a cock for a hen chicken, as no bird shows comb so early, while the pullet is always backward.—XERES.

FOOT-ROT IN FOWLS.

MY fowls have given me a good deal of trouble lately, with a complaint of the foot, which they all have had or have now—quite an epidemic in its way. The birds begin by standing about on one foot, drawing up the other into their feathers, and closing the toes spasmodically, when they begin to walk lame. On examination the ball of the foot appears hard and swollen, the skin scaly and brittle, and a kind of black canker, hard and

cracked, in the centre. This canker if not attended to soon works into the foot, the skin burst and discharges, and the flesh seems to rot away. Indeed, the foot assumes quite the appearance of sheep's feet with the rot in them, and smells quite as offensively. When I have taken the disease in time, I have easily cured it by cutting out the dry cankered skin and flesh, bathing the foot, and putting it into a kind of glove of linen. What can the disease be, and what can it arise from in a dry, gravelled yard? Young pullets and cocks, old fowls and cocks, all seem to suffer alike.—E. C.

[We should be disposed to attribute the complaint in the feet of your Dorkings to injury sustained by flying from a lofty perch. In their new abode, do not let them be more than twenty-four inches from the ground, and let the flooring be of loose gravel. Mere swelling of the foot often arises from wooden, brick, or stone floors; but neither of these would cause the canker, cracking, or offensive smell you mention. We have had but one case this year. The patient was a White *Cochin* cock. We poulticed the foot for some days, then wrapped it in leather, and put him in a pen on grass. He recovered entirely.

There is a disease in ferrets called "foot-rot," which is really an ulceration like that in the sheep, and of your fowls. This "foot-rot" is cured by applying to the part diseased a mixture of two parts of spirit of turpentine, and one part of creosote. We should try it upon one chicken first to see if it were effectual. If the mixture touches clothes, its offensive smell adheres to them for a long time. It causes much pain to the animal at the time of application.]

THE BRIDGNORTH POULTRY EXHIBITION.

THIS Exhibition has always been a spirited affair, and the late Meeting has proved fully equal to its predecessors. Around the neighbourhood are to be found not only a few of our most notorious exhibitors, who have always endeavoured to support its popularity, but from the offer of a silver cup, of seven guineas value, for "the best collection," much emulation has also been evinced among exhibitors who reside in the most distant localities.

Under these circumstances, Bridgnorth Show is annually looked forward to by poultry amateurs as producing a display from the yards of most of our principal breeders that is rarely to be found at such meetings. Such hopes were not misplaced this year, the competition being generally of first-rate character. With the exception of *Game* cocks, the rules enforced that all poultry must be birds of this season.

The *Cochins* were the first class on the prize list. Among them were some of the most excellent of specimens, both in Buffs, Partridge-coloured, and White birds; but, although a prize was offered for Black ones, not a single pen presented itself.

The cock in the first-prize pen of Buffs has very rarely been excelled, and should he still continue in the truly splendid condition in which he was exhibited at Bridgnorth, he will be found a very troublesome competitor at the majority of our winter Shows.

The two pens of prize Grey *Dorkings*, exhibited by Mr. Whittington, were most praiseworthy; but the majority of the birds in this class were certainly not so good as we have seen at former Meetings of this Society.

Neither did we find the *Game* classes equal to the display of former years.

The Golden-spangled and Silver-pencilled *Hamburghs* were very excellent; but the Golden-pencilled and Silver-spangled varieties were not nearly so good.

As on many previous years, some very superior *Polands* were exhibited by Mr. Hazlewood, of Bridgnorth, of several varieties.

The *Spanish* chickens were excellent.

Among the pens of any other variety, was a pen of darkly-pencilled *Brahmas* of great beauty, belonging to Mr. William Harvey, of Sheffield. They were one of the best groups in the whole Exhibition.

The *Bantams* were quite a treat to any amateur, very rarely, if ever, have a pen of better Silver-laced Sebrights, than those shown by Mr. G. Peters, been exhibited; and the Black-red Game Bantams, the White ones, and Golden-laced, were of great merit likewise.

The Aylesbury Ducks were of highest character; the three winners weighed 25 lbs.; and in best proof of the excellence of this class generally, it may be noted, that a pen weighing 22 lbs. could only reach a high commendation. The Rouen Ducks and Labradors were also of first-rate quality.

After a very close run, the seven-guinea cup (a really beautiful one), was gained by Mr. Peters, of Birmingham. The competitor who pressed him so heavily being Mr. Chune, of Coalbrookdale.

Many of the highest families in the county of Salop were among the visitors; and the superior manner in which every department of the Show was conducted was universally admitted.

One great drawback to the Bridgnorth Poultry Exhibition hitherto, we are pleased to hear, will shortly be obviated altogether, by the town possessing railway communication. As at present, however, the poultry have to travel fully ten miles by ordinary roads, it has naturally tended to limit the number of entries considerably. We trust before another Meeting the fresh arrangements will be completed, and we shall then have but very little doubt that the Show itself, equally with the numbers visiting it, will be thereby greatly augmented.

Mr. Edward Hewitt, of Eden Cottage, Spark Brook, officiated as the Judge on this occasion.

TAIL OF SILVER-SPANGLED HAMBURGH COCK—EAR-LOBES OF GAME PULLETS.

IN your "Poultry Book for the Many," you state "that in the tail of the Silver-spangled Hamburg cock white appears, though black should decidedly preponderate." Is this still held to in judging poultry at Exhibitions? I have this year bred several cockerels, all whose tail-feathers are a pure white with large black spangle on the extremity, which I considered to be more perfect than where the hackle-feathers were splashed with black; and in showing my poultry to a friend lately, he pointed out the above statement in your book, which is the cause of my troubling you with this communication.

I have also bred some Game fowls this season, and in some of the pullets I notice a whitish tinge about the centre of the ear-lobes. Is this a serious objection, if any, to their success as exhibition birds?"—J. YOUNG.

[The tail of a Spangled Hamburg cock should be entirely white, save the spangle at the extremity, which should be a bright black. This is perfection. Splashed feathers are a great defect. Your friend, probably, confounded Pencilled and Spangled Hamburgs. In the tail of the former black should, undoubtedly, preponderate, as the foundation colour of the feathers, but they should be hedged on both sides with a dull silver white. A similar mistake is made in "The Poultry Book for the Many," but the woodcut there is right.

White, or partially white, ear-lobes in Game pullets are not desirable, but they do not by any means form a serious objection. Indeed, they can hardly be considered in that light.]

B. & W.'s NEW APIARY.

THERE can be no doubt, as Mr. Fox says, that "where it can be safely left to the bees to throw off their swarms naturally . . . it is best to do so." Unfortunately, however, there is so much risk of swarms flying away unperceived, that I have for many years managed my apiary in such a manner as to anticipate as much as possible *all* natural swarming. Reviewing the successes and failures of my experience, I see no reason to alter my practice, or to check my strong recommendation of artificial swarming to all clever and skilful bee-keepers. My successes have been great in the shape of plenty of beautiful honey, and a very great interest in the carrying out of my experiments. Nor has this season (1859) been an exception. It is with much pleasure, therefore, that I respond to Mr. Fox's appeal, and record the doings of my bees. The following figures will represent the *positions* of my hives in the bee-house (looking at them from the inside), as well as the *order*, in which the several colonies were established. There are two rows of hives, one

III.	I.	V.
VI.	IV.	II.

over the other at a distance of two feet.

No. I. is the artificial swarm of May 5th. It has given me (1) a box (super) containing 13 lbs. nett, of perfectly pure honeycomb; (2) a small glass containing about 1 lb.; (3) a box (nadir) containing 13½ lbs. nett of pure comb, besides some little comb worked in a small super which I shall put by for another year. Here are 27½ lbs. from No. I. The original box is now extremely full of bees and honey, but it is the most inactive of my hives at this moment. It employs the fewest bees of

any pollen-gathering, at which all the other five are busy in proportion to their strength.

No. II., of May 9th, is in fine condition as to wealth, activity, and population. It has yielded me a small super and a glass, the former containing 5½ lbs., and the latter 2½ lbs.. In all 8 lbs. of finest honeycomb, besides working some comb in a second super.

No. III., of May 17th, was, for a long while, *very* scant of bees, and at one time was despaired of. It has, however, gradually made progress, and now promises as well as any of my stocks. It is full of honey, comb, and bees, but has not yielded any surplus comb.

No. IV., of May 27th (which is of kin to No. II.), was not much more populous than the last swarm, and laboured under the further disadvantage of having a very young (*artificial*) queen, who did not commence laying at once. Consequently this swarm has not quite filled its box, but it has plenty of honey coiled up, and is sufficiently strong in population to promise well for another year.

No. V., of May 30th, has well filled a large box, and given me about 6 lbs. in a fish-globe.

No. VI. was a compound swarm made up of the populations of two hives that had given forth *natural* swarms. My servant by some mistake brought home these stocks instead of the two out of which I had severally driven III. and V. This stock, therefore, has a young queen hatched this year in the ordinary way. The box is well filled with honey and comb, and is very populous, and hard at work gathering in pollen; as are all my hives, in proportion to their strength, excepting only No. I., whose queen may well rest after her summer labours.

From the above account it will be seen that I have obtained 41½ lbs. of first-rate honeycomb from my new artificially-formed apiary, besides some ten or twelve pounds of dark honey run from the combs of the old hives, out of which I *drove* my swarms. The original hives, four in number, cost me £3, that is an average of 10s. per *swarm*, and they have yielded me £2 11s. 3d. worth of honey, at 1s. 3d. per pound, and at least 10s. worth of inferior but good honey, at 1s. per pound, which is the market price for common honey in my neighbourhood. I say nothing of the *wax* obtained. Thus my *bees*, from the four parent hives have cost me nothing, I may say, this year. They have more than paid the expenses of their purchase.

From the above facts, comparing this with my former communication of June 21st, Mr. Fox will be able to form his own judgment as to the advantage of *driving* swarms over the old plan of waiting for their *natural* issue. The following advantages will not be denied:—

1. In a season *not favourable to swarming*, I have stocked my apiary with certainty and with perfect success early in the year.

2. I have done so *at my own convenience*, without being dependent on the bees' pleasure.

3. By purchasing old hives, and making them swarm twice, I have obtained an extra quantity of honey, and a good quantity of wax for household purposes.

4. I have by this plan secured several young and vigorous queens.

To counterbalance these advantages, it may be objected that my swarms were, in general, small, and would probably have failed in a less prosperous honey season. To this I reply that the old hives out of which I forced these swarms were in an unusually weak condition, owing, in part, to their having been procured out of very neglected apiaries, and, in part, to the *extremely unpropitious* weather we had in April and May, when many hives perished altogether in this and other neighbourhoods, from cold and starvation. Indeed, if it had not been for the second honey season which we had in July, this year (1859) would probably have been remembered as one of the most disastrous bee seasons on record.

I shall be very much obliged by having Mr. Fox's and "A DEVONSHIRE BEE-KEEPER'S" candid opinions as to the facts I have here recorded, and as to the merits or demerits of my mode of managing bees.

I should add before I close, that this is by no means a superior honey county.—B. & W.

OUR LETTER BOX.

LARGE PRODUCE OF EGGS.—Mr. Douglas has misunderstood us. We spoke not of a Pheasant hen, but a hen Pheasant. Their season for laying is April.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	OCTOBER 11—17, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock afterSun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
11	Tu	Malva campanuloides.	29.715—29.512	55—26	W.	.00	18 af 6	16 af 5	rises	(☺)	13 8	284
12	W	Manulea viscosa.	29.985—29.885	56—46	W.	.02	20 6	13 5	4 a 57	16	13 23	285
13	Th	Mesembryanthemum serrulatum.	30.070—29.901	65—45	S.W.	.05	22 6	11 5	5 14	17	13 37	286
14	F	Mesembryanthemum minutum.	30.181—29.120	64—52	S.W.	.00	23 6	9 5	5 40	18	13 52	287
15	S	Mesembryanthemum surrectum.	30.096—29.899	61—38	S.W.	.00	25 6	7 5	6 15	19	14 5	288
16	SUN	17 SUNDAY AFTER TRINITY.	29.815—29.091	59—47	S.	.00	27 6	5 5	7 4	20	14 18	289
17	M	Mesembryanthemum taurinum.	29.807—29.765	58—36	N.W.	.22	29 6	3 5	8 9	21	14 31	290

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 29.95° and 29.83°, respectively. The greatest heat, 76°, occurred on the 14th, in 1845; and the lowest cold, 24°, on the 15th, in 1850. During the period 119 days were fine, and on 105 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE plants being cleaned, surfaced, staked, and arranged, they will require but little beyond the ordinary attentions of watering and regulating the admission of air. Plants, when fresh surfaced, sometimes droop without any apparent cause, which generally arises from the roots being very dry; the fresh soil absorbing most of the moisture, and the water escaping between the pot and ball of earth. This is usually brought on by surfacing the plants when dry: as soon, therefore, as the consequences are observed, the plants should be examined, and sufficient water given to wet the ball of earth thoroughly.

CHRYSANTHEMUMS.—Treat them without further delay as advised in a late Calendar. An occasional and moderate supply of clear liquid manure will assist to develop their flowers to greater perfection. If any indication of mildew appear an application of the flowers of sulphur, when the foliage is damp, will banish it.

FUCHSIAS.—Encourage the young stock to continue their blooming by the application of a little weak liquid manure. When the flowering is over, and they have lost most of their leaves, they may then be set aside in any corner free from frost for the winter. To be kept moderately dry.

MYRTLES.—These and other such evergreen plants requiring protection to be placed in pits or frames, or in any other structure, as near the glass as possible. To be watered regularly; but, like all other plants, care must be taken that they do not get too much at any time during the winter.

STOVE AND ORCHID-HOUSE.

The plants that have taken their rest should be shaken out, and repotted; pruning back such as require it, and placing them in a gentle bottom heat. The Orchids showing bloom—such as the *Cypripediums*, *Phajus grandifolius* and *Stenorhynchus speciosus*—to be supplied with plenty of heat and moisture. Some of the other sorts—such as the *Catasetums*, the *Cynoches*, *Lycastes*, &c., that are approaching their dormant state—to be accommodated, if possible, with a drier and cooler atmosphere. All fast-growing plants—such as *Clerodendrums*, *Vineas*, &c.—that require large pots in summer, to be now turned out of their pots, the soil to be shaken from them, and repotted into the smallest sized pots that will contain them, without pruning the roots much at this time.

CLIMBERS.—Some of the most rambling will now want some pruning, more especially where they obstruct the light in any material degree. The *Combretums*, *Echites*, *Ipomæas*, *Mandevillas*, late-blooming *Passifloras*, *Pergularias*, *Stephanotises*, *Thunbergias*, &c., which are still growing, to be regulated with a more gentle hand, cutting out but little more than barren shoots, and drawing the remainder into somewhat closer festoons, to allow the

more free admission of sunlight into the interior of the house.

FORCING-HOUSES.

CUCUMBERS.—The plants for a winter supply of fruit should now be making progress. Keep the vines thin, and use every means to keep up a good heat, with liberal admissions of air at all favourable opportunities, to get them strong and vigorous against the winter months. Stop mildew by dusting the leaves with sulphur.

MUSHROOMS.—Succession-beds to be made according to previous directions. Give a good sprinkling to those in bearing, to produce a genial humidity; and turn the covering material occasionally, to keep them sweet and free from mouldiness.

PEACHES.—When the trees in the early house are pruned, it is advisable to cover the cuts, when dry, with white lead, to prevent the admission of air and water to the wound. Wash the trellis, whitewash the flues and walls, and make every part of the house clean. Dress the trees with a mixture of soft soap and sulphur in hot water; to be well rubbed in with a brush or sponge.

VINES.—Continue to look over the ripe Grapes, cutting out any decaying berries. If the fruit is to be kept for any length of time, and if any plants, through want of other accommodation, must be kept under the Vines, they should be watered in the morning, using a little fire heat in the day, with air, to expel damp before night. Whatever system of pruning is adopted, whether the long-rod or spur, it is advisable, when the brown scale is visible, to take off the loose bark, to wash them, and the wires and rafters, with soft soap dissolved in hot water, using a hard brush, being careful not to injure the buds; afterwards to apply hot lime, made to the consistency of thick paint.

WILLIAM KEANE.

BULBS, ROOTS, AND TUBERS.

THERE are so many things which occur naturally to one's mind just now on looking round the garden, that the post-office revenue is much increased every autumn from the extra number of letters that are sent to all editors of gardening literature at the tail of the season. But from one thing and another, from reporting shows and show places, from waiting day after day for the sun to shine, or else be laid up with sciatica and lumbago, by getting wet through to the skin, and from other causes, the work has so accumulated on my hands that I should need a new broom to sweep my heap right off. Instead of that, however, I prefer the handle of the old broom, and shall give you a broomstick article about bulbs, "roots," and tubers.

The best Hyacinths, in a running shade of colours, will be found in the Vol. for last spring. They stand there just in the way ladies would have them planted in beds or in ribbon-borders, for I saw them all in perfection at the time at the first exhibition of Hyacinths by Messrs. Cutbush & Son, of Highgate, who "have now the gratification of announcing that, in consequence of the success which attended that exhibition, they have resolved to

hold a grand exhibition of Hyacinths and other spring flowers" at their own house at home, to open on the 12th of March. I said at the time there was more in these shows than might appear on the surface: and I make no doubt but the Messrs. Milne, Arnott, & Co., of the Vauxhall Nursery, will also "resolve" on something worth looking at in their way; and that the host of new Camellias, of which the invoice came in when I was cross-questioning the original propagator of the tribe, as one might call him, will be seen on the front stage of that long show-house, with the comfortable-looking and very tidy cocoa-fibre matting along the whole passage again, as last spring, and a splendid new specimen of the double white Camellia planted out in the bed across the path. That specimen became too big for the conservatory at the Experimental Garden; and I advised the owner to part with it to this firm in exchange for a lot of small plants of the very newest and very best of the old ones, which happened not to be in the Experimental at the time. Well, what should I do but order the gardener, Mr. Peats, to plant out all these young Camellias in the border across the end of the house. He did so, or I did it for him, and they did remarkably well; and what did he do, but, "out of his own head," take up a dozen of them last week, and had them potted after Mr. Errington's model for his show next spring.

Then the Messrs. Fraser, of Lea Bridge Nursery, will be all but certain to follow suit and give a grand Azalea exhibition at the proper time; but they could muster up a Chiswick Show any April or May.

The Cyclamens, and the head of my broomhandle "bulbs and roots," will be the spring flower show at the Wellington Road Nursery; and more particularly the Cyclamens and the dwarf early Tulips, single and double, and of all forms, and of all colours and mixed colours. I must learn what things will be the principal spring exhibition at the Clapton Nursery, at Pine Apple Place, at the Exotic, under the Messrs. Veitch, at the Lees' and Salter's at Hammersmith, and at all the rest of the metropolitans, before I can sweep them up in my basket.

What I was going to say was about Cyclamens first; but the first must come second, as, since writing the above, the post brought the welcome news that *Cyclamen vernum* is not quite lost. But there is not a gardener out of ten thousand who has ever seen it; and perhaps there are not ten nurserymen in Europe who would know it if they were to see it. Finally: I failed to hunt up a "root" of it in the whole trade; and my belief is, that there has not been a root of it on sale in Britain since about the passing of the Emancipation Act in the spring of 1829, when I saw it with the father of the Messrs. Fraser at Lea Bridge Nursery. The plant I saw there last spring is not the published *vernum*. I do not believe it possible for any one to keep *vernum* from blooming in the dead of winter. It bloomed last November with the kindhearted man who has promised to send it me "at once." Mr. Gordon is the only author who really knew *Cyclamen vernum* since Sweet's time: he is a sound practical botanist—much more so than his master was. At all events, if *vernum* come safe to me I shall undertake to sweep off the dust of all these years, and say which is which to a certainty.

So far for cross sweeping. Now for the beginning of the course, and going back to Samuel Gilbert and his father-in-law two hundred years ago. He said "sow the seed of spring Cyclamens as soon as it is ripe, and it will come up next spring." Samuel was wrong there for once, and every author who wrote about the spring Cyclamens from seed, down from Samuel's time till this summer last past, was just as wrong as he. Not, of course, exempting your humble servant, who followed the rest and jumped over the straw, because the first of the flock did the same, and from not knowing better. But I had my suspicions for years respecting this point in the management of the

Cyclamen. There is nothing in the nature of such corms or tubers which differs from the nature of real bulbs; and it is so unnatural for the seeds of all bulbs not to vegetate at the season it is natural for the parent bulb to begin its annual growth, that I venture to assert that there is not an instance on record to the contrary, except that of the spring Cyclamens by Mr. Samuel Gilbert, and by all who have followed him for the last two hundred years. Then, to prove if this instance were really true, or merely taken on hearsay, I instituted a series of simple experiments, as soon as I had sufficient materials to give me the result of trials under three or four different managements.

Last spring I wrote about boxing Cyclamens, and the American Cowslips, and Dogs-tooth Violets, for window-cells and balcony recesses. I then had boxed nine or ten kinds of Cyclamens for the said experiment. They did remarkably well set outside the window and taken inside at night, when it was likely to be a frost; but in the face of all my practice, I could not get them to do just as they ought in-doors after they came into bloom; every room was too hot for them. The "roots" were in large 60-pots and in small 48's, and the box was a chance one, but as near their power of filling it and feeding themselves as I could judge. The length will be no guide to others; but the length of my box happened to be two feet, the breadth ten inches, and the depth ten inches, which I think just the proportions for them on Harry Moore's plan of not disturbing them again for the next seven years. In a breadth of ten inches one cannot put in two rows of them, as their leaves would hurt each other. The way to do it, is to put the first root in the very centre of the one end, and two inches from the wood; then four inches behind that put in two roots opposite, and only two inches from the sides, then a single root in the centre, again and again a match pair. After one sees the kinds, there is no difficulty of pairing or contrasting the colours. My centre kind is *Persicum rubrum*, the magnum bonum of the family; but any one that is equally strong would do in the centre equally well, or the *Persicum* breed might, and should, occupy the centre. Or, again, suppose you would prefer having three full rows, which, in truth, is the right way, the *Persicum* must take along the centre, the *Atkinsii* breed on one side, and those which run more after *Coum* on the other side. Both breeds being more dwarf than the breed of *Persicum*.

Well, as I was going to say, my box bloomed very nicely, and the kinds were the most distinct; but I could no more resist the ruling passion for crossing than I could fly, and the way to cross Cyclamens, when thus grown together, is well worth knowing, as I shall show presently. The mother hangs down in each flower, and ends in a point sharp as needles, and the stamens hang down over her; the anthers ripen in succession, and do not discharge the pollen all at once, as many other flowers do; therefore, there are many chances for crossing, and for fertilising this flower; in the morning, at noon, night, and next day, and the second and third days, if the weather is dull and cold. The anthers being taken from the flowers which are selected for mothers, all that is necessary to do is to draw the two flowers close together, and tie them to one stick—that is, the footstalks of the two flowers, leaving the flowers quite free; then having the pollen flower to windward, jerk it with the middle finger springing backwards from the thumb, and at every jerk, or every first jerk, you will see a puff, as from the Artillery plant. That puff is the pollen, which, being to windward, and close upon the sharp point, passes all over it, and round about it, and the most mysterious thing in the science of botany then takes place in a way which has hitherto baffled all scientific investigations to know how. The way science has settled the impregnation of the seeds is an utter fallacy and a phantom, and this Cyclamen is not a bad subject to refute the doctrine, and show how baseless

it is. They account for it by saying, that a pollen grain passes through tubes down to the seeds, but by what force is not given, whether it be by its own weight, or by some powerful attraction from below; but gravitation and attraction are against a bullet going up straight into the air of its own accord, as the pollen grain or dust must needs do, to get up to the ovary of the Cyclamen.

And so many of my flowers were dusted, but the box being full of kinds, there is no saying how the crossings went till the seedlings come to bloom. I had a good number of seed-pods one way or another, and the boxes were watered till the seeds were ripe, and after the leaves were gone, which is an unusual way; but there are some bulbs which need to be watered after the fall of the leaf, if their seeds are not ripe then; and it is still a practical question to be carefully proved by direct experiments, whether any one kind of bulb in existence, which does not cast its roots as well as its leaves, should be allowed to go thoroughly dry at the roots all the time it is at rest. At all events, those great bulbs belonging to the *Amaryllis*, about which we hear from time to time, ought most certainly never to be left quite dry at the roots all the time they are at rest, or all the years they are in this world. My experience with them over many years prompted me to go on watering my box of Cyclamens till the last seed-pod was gathered in June, when all vestiges of the leaves were forgotten. I then gave them six weeks' rest: but the box being well mulched with cocoa stuff, the soil, except, perhaps, at the sides, was never quite dry.

Other Cyclamens were under different experiments in various ways and aspects, but those which did the best, from end to end, were along with my pet seedlings, which had to be watered by hand the whole summer to the very end of August, and very often six times a-week, the Cyclamens getting their full share all the time. They were up with fresh leaves by the beginning of August, having gone just two months out of the twelve without leaves; the rains of September agreed with them so well, and they got so fat and chubby upon them, that their own father did not know them by the last Saturday in the month, and yet I consider him the best hand and head we have among Cyclamens. He insisted on it that my prize experiment-plant was the broad-leaved *Africanum*, till I showed him his own number-stick, with No. 9 on it. But, if I live long enough, I shall be able to turn all my Cyclamens into *Africanums* by adopting Nature's plan.

Cyclamen Africanum is only a variety of an English native plant, which, in the north of Africa, about Algiers and from there on to Tunis, has acquired a double size to the leaf through the mildness of the winter, the extreme heat of the summer, and the deluges of periodical rains. Follow out the climate of Algiers; let all the Cyclamens be in the free soil for three or four years; give them water most abundantly from May to October; and have a cold frame ready to put over them when the frost comes, but every mild day or hour throughout the winter let the glass be off entirely. Here they will not only get leaves double the size of the ordinary run, but sow themselves, and come up as thick as Mustard and Cress. Then you will prove for yourself that which I have just proved this summer, and that is, that all the seeds of all spring Cyclamens will sprout and come up before the middle of September, or say come up with the growth of the parent plants; and in two years and six months the seedlings will flower if they are fairly dealt with. My seedlings, which are now strong and healthy, ought to be as forward by the end of next May as one-year-old plants from spring seedlings.

But there is a move in bulb seeds which must be attended to with the seeds of Cyclamens, and that move is not to let them get quite ripe before they are sown. In 1849 or 1850 I had the most curious cross on record—*Cyrtanthus obliquus* crossed with the pollen of *Vallotta*

purpurea; and I sent one pod of seeds to Dr. Lindley to be managed by Mr. Gordon at Chiswick. They both thought I was daft, and they put it on record that I presented an unripe seed-pod of so and so; but after a little chaffing for their limited knowledge of crossed seeds, they also put it on record, in a footnote in the "Journal" for 1850, page 136, "the seeds have grown and have produced about a dozen young plants," &c. That pod was certainly as green as a Cucumber; and the pods of all *Cyrtanthi* must be gathered at that stage, else the seeds would take two or three years to vegetate. The seed-pod of Cyclamen is a true berry, according to the Doctor's own definition; and a berry has the seeds loosely imbedded in a pulp, as the Grape or the Currant. We have seen *Hamburgh* Grapes as red as a fox, and yet ripe enough for table, and the seeds as ripe as Mignonette; therefore it does not always follow that a berry must needs attain its natural ripe colour in order to have the seeds ripe also. And so it is with the berry of the Cyclamen. When you find the pulp is quite soft it is time to gather the berry. The pulp of my Cyclamen was in this condition just one month before the outside of the pod or berry was ripe for use, if it were eatable, therefore, a month may be gained, and should be thus gained, in sowing the seeds; and more than twelve months are the gain of that early sowing.

The exact way I did shall be shown to the deputation from the British Pomological Society, who are coming down this week to learn this "trick" about my black Grapes. But the substance of it is, that when the pulp of the pod yielded readily to the touch, the pods were gathered and squeezed so as to break them and make them flat as a pancake. Each pancake was thus sown with the seeds still in the pulp. One No. 32-pot was sown as if I had been sure of a hit—that is, sown thin enough to rear the seedlings without too much crowding, and the other 32-pot had four times more seeds than it ought; so that, if the seeds did not vegetate till the spring I could then divide them into four pots of the same size. The soil was the common garden soil, moist enough naturally; and with the moisture of the pulp there was no need to water, nor did the pots receive a drop of water or rain till the seedlings were "up;" but they were managed as the large Cape *Amaryllises* should be on their arrival here. The pots were plunged in the open garden where the soil is moist, and an empty pot was turned over each of them for two reasons—to keep off heavy rain, and prevent mice botanising among them. The ground round the pots was often watered, and the soil in the pots was between wet and dry the whole time; and now the pots are over the Verandah inside larger pots, and full in the sun, and nothing but frost will cause them to be housed all this next winter; and as soon as the frost is over out they go, and so on from frost to frost till there is no more of it.

Here, then, is a grand encouragement to begin to grow Cyclamens, the very prettiest of all flowers, and more easy to raise from seeds than Geraniums or Potatoes. To seed them for sale the "roots" would pay better never to be in pots. A raised border three or four feet in front of a low wall is the best place for them, with a slight frame and glass to put over them in severe weather; and they would sow themselves, and come up there as safe as the Bank of England. I have self-sown seedlings where I left pods in the open border at this moment, and they will do better than those I have in pots. In good boxes they may remain ever so long; and the simplest way to have them for the drawing-room is to leave them out under glass till the flower-buds appear; then to lift and pot them like Crocuses; and when they are out of bloom out with them under the same glass till bedding-out time; then turn them out of the pots, and keep them well watered the whole season: but annuals, or any flowers, may be grown with them and over them all the summer.

D. BEATON.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(Continued from page 5.)

DIVISION OF THE GROUND—Continued.

ASSUMING our plot to have a roadside-frontage, it would be prudent to have a gate for carting materials on that side, and from this gate there must be a clear way to the central or open part of the ground. It is not necessary to have a hard prepared road any further than merely around the back premises, as that would be sacrificing too much ground; but there must be no trees or other impediments in the way of carting manure or other materials over the bulk of the plot.

This being settled, it will now be requisite to fix on one side to have the sundry crops, which are known under the general name of kitchen-garden crops, and such fruits as are likely to be wanted. This very important section of the ground may consist of as much as half an acre, if the wants of the family be likely to require that much; but I will here set it down at something less,—say sixty rods, which, in ordinary cases, will be ample, as we will suppose the winter Potatoes to be grown on the other or open portion, which, by way of distinction, we shall call “the farm.”

Having now divided it into the farm and kitchen garden, not recognising any dressed ground or site of premises, we have 260 rods devoted to farm crops, and sixty rods to garden vegetables and small fruits. We now come to sub-division and planting; and whatever inequalities there may be in the outline of the piece, let the line between the garden and farm be a straight one; and if there are two lines, let them be at right angles. This regulates the cropping in both plots, and it looks better. It will also be advisable to have a walk between the two; and if such walk points direct to the dwelling-house, so much the better, as it will be a general thoroughfare.

This done, plant a row of Gooseberries, six feet apart and three feet from the edge of such walk, all round. I advise this as much for appearance as utility, as I confess, in a general way, I like fruits planted by themselves best. But there is a sort of a furnished appearance to ground that has trees or bushes scattered over it that the public are very partial to: if such walk go all round, or round three sides of the piece, and be planted with Gooseberries the whole way, there will be ample of them; but in an ordinary way about sixty or seventy trees will be sufficient; the rest of the space being planted with Red and Black Currants, and two or three White ones. Taking care in all cases where practicable to run the walk straight, leaving whatever inequalities the fence may present to the marginal border, which may be any width, from twelve to twenty feet, as may be desirable; and if it is a south border, and backed by a good wall, it will be a great value for early things, as well as sites for Peach and Apricot trees, and perhaps a Vine. This, however, will be treated of hereafter. (See SOUTH BORDER.)

In addition to the walk round the plot, or rather round three sides of it, let there be another one across it in the middle, the shortest way; and if the piece were originally about sixty yards long by thirty wide you will then have two squares, or nearly so, for vegetables and other crops. The space occupied by the fruits planted by the sides of the walks being somewhat thus:—The Gooseberries and Red and White Currants occupying these borders only, and the Black Currants, Raspberries, and Strawberries, some portion of the internal square or outside border, as the case may be.

Gooseberry trees, about 60 plants	Rods.
Red and White Currants 30	7
Black Currants 30	4
Raspberries 30	4
Strawberries 400	2
The walks mentioned above being three feet wide	3
Total	5
	25

The above items will take up twenty-five of the sixty rods in question, the remaining thirty-five being to crop with the various vegetables required for the use of the family, and in such proportions as may be most in accordance with the particular wishes of those concerned; but to those not acquainted with such things, I will here give what is considered a fair proportion of each, and then speak more at large on their culture individually. Taking, therefore, the growth of vegetables for one year, and in the manner in which sometimes two crops will be taken during that time, the following may be regarded a fair proportion in everything except Potatoes, which, as explained before, are expected to be mostly grown on “the farm;” those here mentioned being only for the use of the family in the early part of the season, and the space they occupy cropped with something else immediately they are taken up, as will be described in the proper place.

	Rods.
Early Cabbage, two plantations occupying the ground one full year or more	4
Peas, followed by Broccoli of various kinds	6
Potatoes, followed by Celery, and a small bed of winter Spinach, perhaps	6
Scarlet Runners and French Beans	2
Broad Beans, followed by some autumn crop	1
Onions do. do.	2
Carrots, 1½ rod. Parsnips, 1½ rod	3
Brussels Sprouts, Savoy, and Red Cabbage	2
Cauliflower and Lettuce exchanging places with winter Onion and seed-beds	2
Turnips, two or more crops	1½
Rhubarb	0½
Asparagus	2½
Miscellaneous, including herbs and odd articles	2½
Total	35

It will be easily seen that the proportions of the above may be varied at pleasure to suit the tastes of the family; but what is here stated may be taken as a good guide for the general mass of consumers.

CABBAGES.

Sow a little of the *Early Enfield* variety about the 20th of July, and a little more from 6th to 10th August. Sowing a little of the *Spotborough* also at the latter time. These may be sown on a small bed in the plot of ground marked for *miscellaneous crops*; and if very dry weather follow, water the bed well, and immediately shade it with something. For want of anything better, a little Pea-haulm will do, and if laid over some boughs which may be put on first, so much the better. Plant out a portion of the first sowing as soon as they are large enough and the weather moist, and the remaining portion of the ground may be planted in the autumn. If the winter be mild they will continue growing, and the first sown will come into use early. Keep any weeds down by slightly digging them in; and in early spring the plants will want earthing up. It is proper to say, that in planting allow them two feet each way, and when they are cut destroy no more leaves than can really be helped. The presence of old leaves on the stalk facilitates the formation of young sprouts, which carry on the supply of Cabbage and Greens the whole year; but if at any time there be a larger quantity of good, useful heads than is wanted, boil some for the pigs, and do not give them to the cow, as they flavour the milk.

PEAS AND BROCCOLI.

These popular vegetables are justly allotted a large space in our available ground. For the earliest Peas sow *Sangster's No. 1*, the middle of November, and another sowing about 1st January. Two or three crops of some tall kind may follow in February, April, and May. The *Matchless Marrow*, or *Ne plus Ultra*, will answer best, if boughs or supports are to be had, but if

not, *Surprise* or *Champion of England* will do better. Pea-stakes are, however, serviceable more ways than one, as, by keeping the haulm from the ground, the Broccoli intended for the future crop can be planted between. The rows of Peas being six feet apart, give room for three rows of Broccoli between; and care being taken in gathering the Peas, and the haulm being removed as soon as they have done bearing, the plants will strengthen and grow on apace. To enable the ground to endure two such exacting crops as Peas and Broccoli, let the ground be well enriched with manure, and cultivated pretty deep. Sow a small bed of Broccoli in the miscellaneous ground the first week in May, of the *Walcheren*, *Snow's Winter*, and *Portsmouth* kinds, and a few of *Early Cape* on the 1st of June; then plant out, two feet apart each way, as they become large enough, earth up when they are ready, and, if the winter be mild, you will be well supplied.

POTATOES, CELERY, AND SPINACH.

Plant a few *Ash-leaved Kidney* and *Early Shaw* Potatoes in February, if the ground will allow of it. The remainder plant with *Walnut-leaved Kidney* and *Goldfinder* in March, rows two feet for Kidneys, and two feet six inches for the other kinds. Earth-up when ready. And as soon as sufficient ground is cleared of these for one row of Celery, let a trench be made about fifteen inches wide and eight or ten deep, putting in some good, well-rotted dung to the bottom, and plant one row of Celery about eight inches apart in the row. Let the trenches be from four to five feet apart from centre to centre; and being dug as soon as the Potatoes are cleared away, they will be ready to plant when moist weather occurs. A row of Lettuce might be planted on the top of the ridge. For the main crop of Celery sow *Cole's Crystal White* and *Manchester Red* in a pan or box the first week in March. Place it in some warm corner till the plants are up; then put them out of doors. Prick them out on some well-prepared bed as soon as they can be handled, and about four or five inches apart each way. They will stand there till the trenches are ready, when they will take up with good balls of earth to each, and plant in the trenches as directed. The earliest plantation may be as soon in July as the ground can be made ready; the latest not later than the middle of August: earlier than July would be better for the first, but Potatoes will hardly be off sooner. A small bed of *Prickly Spinach* may be sown about the 12th of August, to stand the winter if it be wanted. *Early* or *Summer Spinach* may be sown on any vacant spot; but do not interfere with the more important crops for it unless it be specially called for.

J. ROBSON.

(To be continued.)

ROOT-PRUNING.

I ALMOST fancy before I proceed that I hear some one say, "What a hackneyed theme!" And how many themes are there in gardening which come not under the imputation "hackneyed?" As for finding out some new thing or new theme constantly, I much fear the attempt to show forth such would prove a most vapid affair. Talk about new things, the mighty zest that is in general possessed by our newspapers points in a plain way to the public appetite in this respect. Only behold what a stale thing a paper a week old becomes; it is discovered then that there was little fresh in it—in the main old joints hashed up and flavoured a little. But if we cannot in the world of gardening constantly produce new things, we can at least renew acquaintance with once-recognised principles, and so investigate them as to freshen them before the mind's eye.

Gardening differs much from some of the sciences. Many great principles in it are constantly in danger of being so modified by circumstances as to lose their essence; and it is in order to sustain their aroma—shall

I call it?—that those who are steadfast in the pursuit are in a position to guide the erratic traveller. Root-pruning is now recognised by everybody, and has in the most legitimate way superseded ringing, and such little partial operations, which, as hobbies, are all very well, and have little to do with the main question—how to manage the whole tree. It is now some twenty-nine or thirty years since I first drew public attention to this as a principle deserving general recognition. I well remember at that time having operated on a wall of gross Peach and Nectarine trees, and writing a long chapter thereon in "*Loudon's Magazine*." And who is it that can claim priority to this? But I soon got scolded for my pains. Some mocked the idea; some said my head was turned; and others wrote papers of warning to those who were in danger of being misled by this new-fangled doctrine. Since that day converts have been coming in from all sides, and men high in position have fallen thoroughly in with the principle. This it was in the main, when years had convinced a few knowing ones of its importance, which led to the idea of a systematic dwarfing system in fruits, not by stocks, but by biennial root-pruning called transplanting.

But let us inquire as to what it can do to benefit fruit trees. Here I would ask all those who have been orchardists whether they have not frequently had incorrigible trees—such as for ever seemed luxuriant and healthy, yet seldom bore fruit. Many a person has been sorely puzzled with such trees in former days, not knowing what to do with them. I well remember an old gardener, when I was a lad, recommending a neighbour to give such trees a thorough manuring, on the plea that "it would put new life in 'em." What he meant by new life I was too young to understand; but when I got older and laid aside my popguns I began to consider the case more closely. The fact is, that many trees of such habit would probably make valuable trees and attain a good old age, provided the proprietor could afford to wait for them; but although we all wish our heirs every enjoyment, we also desire to eat an Apple, a Pear, &c., ourselves occasionally. It is, therefore, evident that to hasten the fructification of such trees we must have recourse to some expedient, and that will be found in "cutting off the supplies."

It is perfectly evident that fruit trees may have so much root action as to be incompatible with early fruitfulness: surely this needs no proof. By cutting away a portion of the roots, then, we in proportion reduce the tree's power to produce spray; and we all know that an extreme tendency to make spray is incompatible with the organisation of the blossom-bud, which is so widely different that, in comparison, it might be termed a stationary affair. Let any one observe a strong young tree of considerable size which has been transplanted in the spring; perhaps drought has overtaken it. This luxuriant fellow, hitherto noted for succulent breast-shoots, all of a sudden becomes apparently stagnated; and in place of the spray we find multitudes of small embryo buds studding the stem. Now if this tree—say a Pear—is situated in most generous soil, and takes to it by or before midsummer, we shall find many of these little stumpy buds showing signs of rapid organisation into blossom-buds. To burst into gross breast-shoots they cannot; they are short of that power, which has been taken from them in the act of removal.

But it becomes a question which is the best time to root-prune. My opinion is that the end of September or beginning of October is the best, and I will give my reasons. I have found by experience that the sooner after so severe an operation the tree heals the wounded portions, by the production of tufts of fibres at the extremity of the roots, the better. Such is accomplished if cut at this period in a few weeks; or, if not, a callus is produced, which is quite ready to start with the early spring. I speak now of general principles; but the fact

is, that special root-pruning may be performed at any period, observing one thing—that if performed any time during the growing season, it must not be half so severe; for if then carried so far as we may dare do during the rest period, the tree would cast its foliage, and I need hardly say that such would peril the very life of the tree. But any time between the decay of the foliage and the foliage period in spring is perfectly eligible.

For the sake of young beginners I may here raise another question. Is this root-pruning limited to kinds or families? I answer, No; but in all cases it is, of course, a matter of degree. It is indeed, applicable to any kind of fruit tree if needed, though, some seldom need it: instance the Apricot. I never root-pruned an Apricot in my life but once, and that was at least forty years since, when I was living on Wimbledon Common. It was an overgrown *Breda* that would not bear, and it was pruned most severely. It bore immediately freely: indeed, this was my first essay in this line.

It may be inquired, How are the inexperienced to know how much to cut? This is a matter more easily conceived by one used to such things than explained. But since some of our modern practitioners talk about biennial transplanting, which, of course, is derived from root-pruning, inasmuch as it is impossible to transplant without fracturing or cutting roots. All, however, depends on the habit of the tree as to grossness. For trees with stems of two inches diameter I generally cut to within about three feet of the bole; and thus proceed according to the size and character of the tree.

In this way I have operated on scores of trees within the last thirty years, and trees in general of some size and age; and I may fairly say, that I have seldom, indeed, found cause to regret the operation. On the contrary, it has seldom failed of producing the results expected from it. Of one thing I may remind those readers of THE COTTAGE GARDENER, who have to learn as to fruit culture, that if the root-pruning be done late in spring and severely, that it is extremely probable the subject will be infested with insects the first summer. But, indeed, all root-pruned trees should be dressed thoroughly over every limb as soon as the root-pruning is performed—that is to say, provided it is done in the rest season. As dressing I have been in the habit of using soft soap, three ounces to the gallon, plenty of sulphur, and about half the volume of liquid chamber-slops, the whole thickened with clay to a paint. This we brush into every crevice—in fact the whole of the tree is plastered with it; and in order to ensure the uniformity, I generally add some lime, which proves a tell-tale. Whether the Gishurst will fairly supersede these things remains to be seen; but I strongly suspect that as to plants in foliage the Gishurst will require to have a modification of its chemicals, as, in some cases, it seems to annoy the foliage. If used less than two ounces to the gallon it is somewhat inefficient, and requires repetitions. Now these repetitions, although fun to the amateur, are by no means the same to the practical gardener, who is generally a matter-of-fact sort of man. R. ERRINGTON.

REMOVING A CEDRUS DEODARA AND CRYPTOMERIA JAPONICA.

I HAVE a Deodara and a Cryptomeria, each twelve feet high. They have been planted about six years amongst light, loose kind of stuff, formerly an old foundation of buildings. I wish to remove them a short distance. What season would you recommend to move them? and what precaution would be necessary in moving them?—JAMES ROLLINS.

[This is just the season to remove your Cryptomeria and Deodar, and they are the right size to remove to their last resting-place. The Deodar will be the most precarious. Take a sharp pickaxe and sharp-pointed steel forks, and begin a yard from the stems, making an opening all round, and eighteen inches deep; then with the forks work down the sides of the

ball into that trench, and shovel out as fast as the fork or forks loosen; but do not let the spade or shovel go nearer the stem than the first trench. If you find the soil very loose, take as much ball as you can carry; but if the soil is dry and hard, fork off every morsel of it right up to the stem, and give up all ideas of a ball; for a dry hard ball of earth will, for a certainty, kill a Deodar. If the bottom is loose the Deodar will have sent the roots down perpendicularly full five feet, but you must not break them: fork them up.]

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 7.)

ASTER—STARWORT.

Nat. ord. Asteraceæ. Linn. Syngenesia superflua.

GENERIC CHARACTER.—*Involucre* imbricated; lower scales spreading (except in *Aster trifolius*). *Receptacle* naked. *Pappus* simple. *Florets of the ray* more than ten.

ASTER ABBREVIATUS (shortened). 2 ft. Blue. August. North America.

A. ACRI (acid). *Leaves* linear-lanceolate, smooth, not dotted, three-nerved; *branches* umbellate-corymbose; *involucre* imbricated, half as long as disk. 2 ft. Blue. August. South of Europe.

A. ADULTERINUS (false). *Leaves* stem-clasping, lanceolate, lower ones sub-serrate, smooth, branch-leaves linear, squarrose; *involucre* squarrose, shorter than disk. 3 ft. Violet. September. N. America.

A. ÆSTIVUS (summer). *Stem* erect, branched from the bottom; *leaves* lanceolate, sub-stem-clasping, entire, apex tapering, edge scabrous; *branchlets* pilose; *involucre* scales, lax, linear, acute, equal. 2 ft. Blue. July. Labrador.

A. ALPINUS (alpine). *Stem* one-flowered; *leaves* entire, radical-ones lanceolate-spatulate, stem ones lanceolate; *involucre* scales nearly equal, lanceolate, bluntish. 1 ft. Blue. June. Europe.

A. — FLORE-ALBO (white-flowered). 1 ft. White. July. Europe.

A. ALTAICUS (Altaic). *Stem* simple, corymbose, downy; *leaves* linear-lanceolate, entire, blunt, mucronate, three-nerved at base, veiny. 1 ft. Blue. June. Siberia.

A. AMELLUS (Amellus). *Leaves* oblong-lanceolate, entire, scabrous; *branches* corymbose; *involucre* imbricate, sub-squarrose, scales blunt, inner ones membranaceous, points coloured. 2 ft. Purple. August. Italy.

A. AMPLEXICAULIS (stem-clasping). *Stem* panicled, smooth; *leaves* ovate-oblong, acute, cordate, stem-clasping, serrated; *involucre* scales lanceolate, closely imbricated. 3 ft. Blue. October. N. America.

A. ARGENTEUS (silver-leaved). *Stem* slender, decumbent, loosely branched; *branchlets* one-headed; *leaves* oblong-lanceolate, sessile, silky. 1 ft. Purple. August. N. America.

A. BELLIDIFLORUS (Daisy-flowered). *Stem* much branched; *leaves* stem-clasping, narrow-lanceolate, upper leaves scabrous, lower ones sub-serrate; *involucre* scales spreading. 3 ft. Pale red. September. N. America.

A. BIFLORUS (two-flowered). *Stem* usually two-flowered, but sometimes one-flowered; *leaves* sessile, lanceolate, serrate, scabrous; *involucre* scales, imbricated, adpressed, ovate. 1 ft. Violet. August. Caucasus.

A. BLANDUS (charming). *Stem* pyramidal; *leaves* sub-stem-clasping, oblong-lanceolate, acuminate, serrated, smooth; *racemes* hardly longer than the leaves. 2 ft. Pale blue. October. N. America.

A. BICOLOR (two-coloured). *Stem* hairy; *leaves* elliptic, hairy, lower ones serrate, those on the flower-branches small, numerous, entire; *racemes* erect; *involucre* scales obtuse. 3 ft. White and yellow. August. N. America.

A. CABULICUS (Cabul). *Plant* covered with rusty down; *leaves* lanceolate, petioles short, denticulate, downy; *heads* corymbosely panicled; *involucre* scales ovate-linear, apiculate; *ray* twenty-flowered. 3 ft. Pink. August. Cabul.

A. CANUS (hoary-leaved). *Leaves* linear-lanceolate, entire, three-nerved, both sides hoary; *branches* corymbose, divaricate; *involucre* imbricated, half length of disk. 2 ft. Purple. August. Hungary.

A. CASSIARABICUS (Arabian Cassia). *Stem* erect, pilose; *leaves*

ovate, acute, serrated, tapering at the petioles; *heads* paniculate-corymbose. 2 ft. Purple. September. Russia.

A. CONCINNUS (neat). *Stem* simple, panicled at top; *leaves* sub-stem-clasping, lanceolate, lower leaves sub-serrate, smooth; *involucre* closely imbricated. 2 ft. Purple. October. North America.

A. CONCOLOR (one-coloured). *Stem* simple, erect, downy; *raceme* terminal; *leaves* oblong-lanceolate, entire, both sides hoary; *involucre* imbricated, scales lanceolate, adpressed, silky. 1 ft. Purple. October. N. America.

A. CORDIFOLIUS (heart-leaved). *Stem* panicled, pilose; *leaves* cordate, pilose beneath, finely serrated, petioles winged; *involucre* lax, rather imbricated. 2 ft. Blue. July. North America.

A. CORYMBOSUS (corymbed). *Stem* at top corymbose-fastigiate; *branches* pilose; *leaves* ovate, finely serrate, acuminate, lower leaves cordate, petiolate, naked; *involucre* oblong, imbricate, scales closely adpressed. 2 ft. White. October. N. America.

A. CYANEUS (bright blue). *Stem* twiggy, panicled; *branches* racemose; *leaves* linear-lanceolate, shining, stem-clasping; *involucre* inner scales coloured. 3 ft. Blue. September. North America.

A. DESERTORUM (desert). 2 ft. Blue. July. Siberia.

A. DUMOSUS (bushy). *Stem* much branched; *branches* panicled; *leaves* linear, entire, smooth, leaves on branches very short; *involucre* cylindrical, closely imbricated. 3 ft. White. Oct. N. America.

A. ELEGANS (elegant). *Stem* branchy, corymbose; *leaves* scabrous, stem-ones oblong-lanceolate, entire, pointed, radical-ones stalked, oblong, serrate; *involucre* scales oblong-wedge-shaped, blunt, squarrose. 2 ft. Blue. September. Siberia.

A. EMINENS (distinguished). *Stem* panicled; *branches* one-headed; *leaves* linear-lanceolate, acuminate, edge scabrous, lower ones sub-serrated. 2 ft. Light blue. October. N. America.

A. ——— VIRGINEUS (pure-white-rayed). 3 ft. Whitish-yellow. September. United States.

A. FIRMUS (firm). 6 ft. Red. August. N. America.

A. FLORIBUNDUS (many-flowered). *Stem* smooth; *branches* corymbose, branchlets pilose; *leaves* sub-stem-clasping, lanceolate, lower ones serrate; *involucre* scales lax, lanceolate, imbricated. 4 ft. Purple. September. N. America.

A. FOLIOLOSUS (small-leafy). *Stem* erect, downy, panicled; *branches* few-flowered; *leaves* linear-lanceolate, tapering at both ends, entire, acuminate; *involucre* imbricated, scales linear, acute, adpressed. 3 ft. Purplish-blue. October. N. America.

A. GRAMINIFOLIUS (grass-leaved). *Branchlets* terminal, nearly naked, one-headed; *leaves* narrow-linear, nerveless, not dotted, smooth, erect. 2 feet. Pale purple. October.

A. GRANDIFLORUS (large-flowered). *Stem* branched, hairy; *branches* one-flowered; *leaves* linear, stiff, entire, rather pointed, sub-stem-clasping, those on branches reflexed, edge ciliated; *involucre* scales linear-lanceolate, squarrose. 2 ft. Blue. November. N. America.

A. HUMILIS (humble). *Leaves* ovate, acute, entire, stalked, smooth, edge hispid; *corymbs* diverging; *involucre* lax, imbricated. 1 ft. White. September. N. America.

A. HYSSOPIFOLIUS (Hyssop-leaved). *Branches* corymbose-fastigiate, pressed together; *leaves* linear-lanceolate, three-nerved, dotted, pointed, entire, edge scabrous; *rays* usually five-flowered; *involucre* imbricated, half length of disk. 2 ft. Pale purple. September. N. America.

A. LEVIS (smooth). *Stem* smooth; *branches* simple, usually one-flowered; *leaves* stem-clasping, oblong, entire, shining, radical-ones sub-serrate; *involucre* imbricated, leaflets sub-wedge-shaped, pointed, point thickened. 2 ft. Blue. September. N. America.

A. LAXUS (supple-stalked). *Stem* lax, panicled; *leaves* linear-lanceolate, acuminate, edge scabrous, lower ones sub-serrate, stem-ones reflexed. 2 ft. White. October. N. America.

A. LINARIFOLIUS (Toad-flax-leaved). *Stem* branched above; *branches* spreading, one-flowered, fastigiate; *leaves* linear, entire, keeled, mucronate, nerveless, undotted, edge scabrous, stem-ones upright; *involucre* imbricated, length of disk. 1 ft. Pale blue. September. N. America.

A. LINIFOLIUS (Flax-leaved). *Branches* leafy, corymbose-fastigiate; *leaves* linear, entire, nerveless, dotted, scabrous, spreading, reflexed; *involucre* imbricate; *ray* length of disk. 2 ft. White. July. N. America.

A. LUSITANICUS (Spanish). 1 ft. Blue. June. Spain.

A. LUXURIANS (luxuriant). 5 ft. Blue. September. North America.

A. MACROPHYLLUS (large-leaved). *Stem* branched, diffuse; *leaves* ovate, stalked, serrate, upper ones ovate-cordate, sessile, lower ones cordate, stalked, stalks slightly bordered; *involucre* cylindrical, closely imbricated. 2 ft. White. August. North America.

A. MULTIFLORUS (many-flowered). *Stem* much branched, diffuse, downy; *branches* one-sided; *leaves* linear, entire, smoothish; *involucre* imbricated, scales oblong, squarrose, pointed. 3 ft. White. September. N. America.

(To be continued.)

STOCKWOOD PARK.

THE town of Luton, like many others, built when fuel was scarce, and no railways thought about to equalise in some measure the value of that and other commodities, is situated in a snug hollow, as if for warmth, with the ground rising steeply and abruptly on almost all sides, unless that marked by the channel of the Lea. On one of those raised platforms, not a mile from the centre of the town, and much nearer the neat buildings that are fast occupying the hillside, is placed the plain, massive mansion of John Crawley, Esq., surrounded by the park on all sides, which, and especially on the north side, is well supplied with good specimens of Oaks, Thorns, and other timber. Just beyond this north side of the park, and five or ten minutes' walk from the mansion, the extensive farm-buildings, with steam-engine to cut, crush, grind, and saw, are situated, Mr. Crawley taking great interest in everything connected with farm stock and farm cropping.

With the exception of the farm-buildings, the whole of the offices, stables, and kitchen garden, with its pits, plants, and forcing-houses, are clustered on the east side of the mansion, yet sufficiently separated from it and from each other. These, again, are all separated from the pleasure-grounds to the south by a handsome conservative wall, about 120 yards in length, half of that going in a straight line eastward from the south-east corner of the mansion, where the terrace 3, in the diagram, terminates, and the other half turning in a bend northwards, until it meets the old garden wall, going in a straight line again eastward for 140 yards; but 60 yards of this being lowered and topped with iron-palisading in front of a semi-parallelogram of houses, whilst from the rest of the common wall the fruit trees have been removed, and Ivy and creeping plants are taking their places. Allowing thus 37 yards for the front of the house, and some 40 yards between it and the sunk fence on the south-west side, the mean length will be under 300 yards. Whilst the width will vary from a little more than 40 yards in front of the mansion to 60 yards or more in front of the palisaded wall.

The youngest reader, if he make a few lines with his pencil, will at once perceive the simple position of the grounds, and be convinced that the interest attaching to them cannot be owing to their size or natural variations, but to the simple refined taste displayed in their laying-out and management.

Before entering the grounds, or garden, from the Luton side, two things will be apt to strike the attention of a stranger. The first is, that a public path kept in excellent order passes close to the entrance of the kitchen garden and stables, and something like a hundred yards from the front door of the mansion. No attempt is made to conceal the one from the other. That path must be a great advantage as a thoroughfare between some parts of Luton and adjacent villages, and must be a delightful walk to those merely seeking healthy exercise. I have sometimes regretted, that, notwithstanding sundry hoops and bushes stuck in here and there, as quiet hints for passengers to be on their good behaviour, little paths would be made on the grass, just as if some people felt a pleasure in doing what good sense, and good taste, and the doing as we would be done by would authoritatively forbid. Some of our rich commoners, who think much of the privacy and seclusion of their country mansions, if they could not remove such a path, might try and turn it a little further from their door. If this could not be easily done, they could sink it low enough with a wall, or embankment, on each side, so that the tallest man in walking along could see little but the sky, and the tops of the trees. At present there seems with the general public to be a growing tenacity in maintaining old pathways. A right, however, will never be less a right when it is not overstrained or abused. Even under present circumstances, a

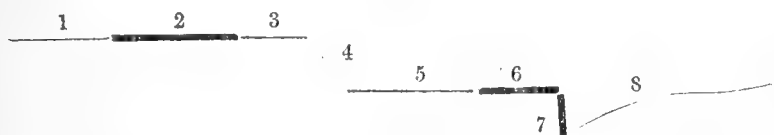
few evergreens, thinly scattered would break, if not conceal, the outline of the front of the mansion.

The second thing is, that from that pathway, and also the approach, the naked boundary wall on the north-eastern side of the kitchen garden is rather obtrusively apparent. Fine timber trees come so near that wall that it would be no use covering it with fruit trees, and then they too would need another fence from cattle, which might be again as obtrusive. Even on a fine summer day the old-looking wall can hardly be considered an eye-sore, as the same utility demonstrates the fitness and appropriateness. Nevertheless, green would be more pleasant to the eye than dirty brick, and a covering of Ivy allowed to grow somewhat wildly would do no harm to the wall, but keep it drier and warmer for the tender fruit trees on the opposite side.

Few places have been so much improved within a short period as Stockwood. It used to be chiefly distinguished for its vegetables and the fine fruit against the garden walls. In the latter years of his life the late Mr. Crawley became an enthusiastic gardener. A series of excellent pits for Pines, Melons, and other purposes were erected, heated bottom and top with hot water. Two ranges of houses were also put up, forming the end and side of a parallelogram in the kitchen garden, under the superintendence of Mr. Busby, whose name is so intimately associated with the *Golden Hamburgh* Grape. The west and south walls of the garden formed the other lines of the parallelogram, thus enclosing a large space of ground between the glass and the said walls. Travelling much on the continent, Mr. Crawley sent everything in the way of fruit and flowers he deemed new and desirable. Many splendid Roses were thus sent, as well as Camellias, &c. The present proprietor is also, along with his lady, passionately fond of Roses, &c. Notwithstanding these improvements, the flower garden remained as it had long been, and was not allowed to be altered; most likely from a laudable feeling of respect for old associations. With the exception of the terrace 3, in *fig. 1*, and the park 8, a person now would hardly recognise the flower garden. It was much the same width as at present opposite the house, and was bounded by an iron fence, but extended little farther eastwards than the first straight line of the conservative wall; the wider space of lawn now between the palisaded wall and the sunk fence being then an orchard. The chief feature of the old flower garden consisted not so much in arrangement or in the size of the beds, as extra large or small, as in the fact that all the massive large beds, and filled with evergreens chiefly, with room for flowering herbaceous plants here and there, were placed *next* the sloping bank 4, which sloped more then than now; and the small beds, which alone permitted of being grouped in the now fashionable mode, were scattered outside near the fence. These were not only exposed to the full force of the wind from the open park, but, planted ever so well, they always presented an unsatisfactory effect from the terrace. First, because there was no background for the eye to rest upon; and secondly, because the masses of large clumps with their shrubs came between them and the eye.

Lines supposed to pass through centre of house and flower garden.

FIG. 1.



1. Ground of park slightly declining to the main entrance, which points to the north-west.
2. Width of house, about twenty-five yards.
3. Terrace of asphalt and grass, nine yards wide.
4. Bank of turf, about four feet deep and eight feet on slope, with a flight of stone steps, and vases at the side, opposite the centre of the house, from whence a straight walk passes and joins the boundary walk 6, at three or four yards from the sunk fence. On each side of this walk proceeding from the steps, a group of flower-beds is placed, as shown in *Fig. 2*.
5. Level lawn, on which flower-groups are placed, thirty-four yards from bank to fence.
6. Walk eight feet wide.
7. Sunk brick wall four feet and a half deep.
8. Part of park beyond, ground gently rising.

Despairing of satisfying himself or anybody else under such circumstances, Mr. Busby had the space in front of the houses laid down in grass, and there he had two separate groups of flower-beds, one for Verbenas, and the other for varieties in masses, with small circles dotted in the wide places on the grass for holding anything peculiarly new or striking. These beds were generally so attractive that I could not help, on friendly

visits, expressing my wish, that by means of a short wall and arched doorways at the ends of the houses, the view of the kitchen garden should be quite shut out from this new flower garden, that the fruit trees should be removed from the west wall, and flowering plants placed against that wall, and the border be devoted to ornamental purposes; and that the wall on the south side should be lowered to three and a half or four feet in height, be coped with stone and decorated with vases; and the orchard then in front turned into a pleasure-ground, with a gate in the centre communicating with the outside and inside. I do not know who the artist was that was ultimately called in; but these ideas have since been carried out to the letter, with the exception that a stout iron railing is on the top of the low wall instead of vases—a plan that can only be justified under the circumstances, on the plea of security, and the public pathway referred to being so near. What used to be the fruit-tree borders are now occupied with fine specimens and a very large collection of Roses. The orchard is now an excellent lawn; and just opposite the gateway in the wall, or nearly so, is a beautiful rosery, with groups of fine shrubs round it, and lighted up with, perhaps, just enough of pretty plants of Weeping Willow.

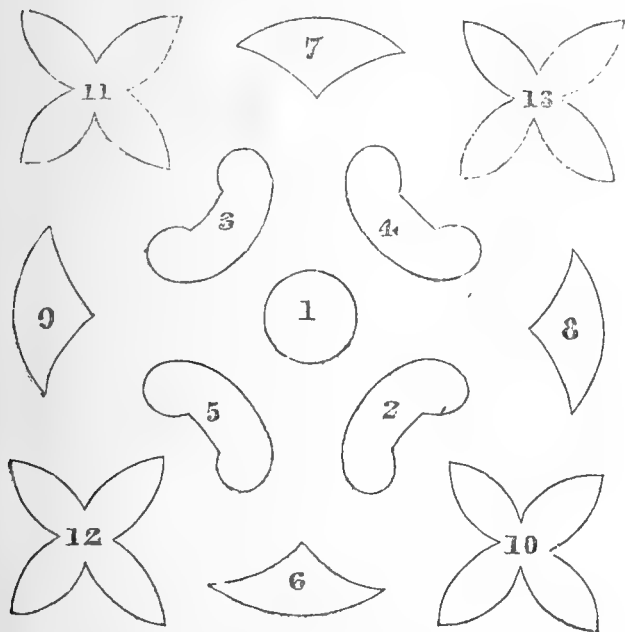
To prevent returning to the matter, I may mention that this enclosed flower garden has been planted in the general way, by Mr. Peacock, and, no doubt, looked well; but as its circumstances are quite different from the garden in front of the mansion, it struck me that to produce variety the planting and arrangement should also be different. For instance: if each of these little circles had a large, massive, single specimen, a distinctive feature would be apparent—one that ere long will be as much thought of and considered more artistic than mere flat beds of colour.

So far as I recollect, the enlarging and altering of the pleasure-grounds have been conducted under the auspices of the present proprietor. The best things, especially in the way of evergreens, were saved and thrown into groups. Massive groups of the best Rhododendrons have been planted on the lawn, where the orchard used to be, and fine large single specimens of *Araucaria*, *Cedrus Deodara*, *Cryptomeria*, *Taxodium*, and the best of the Pine tribe, as *Pinus insignis*, *excelsa*, *australis*, *Lambertiana*, *Abies Douglasii*, *Menziesii*, *Morinda*, *Picea nobilis*, *Pinsapo*, *Nordmanniana*, &c. These are planted so as to have room to grow; and the groups of evergreens, Rhododendrons, &c., are separated by such wide glades of turf, that the whole has a light, airy appearance. From the extreme east-end, from a seat under a fine Oak tree, a good peep through these glades is obtained of the flower-masses in front of the house.

Notwithstanding all this, there is much truth in the old statement that few men can accomplish a work that is above or beyond criticism, whilst anybody can criticise. Well, placed among the anybodies, I may state that there are two or three things I should have liked to see different. First. A separation has been made between the park entrance-front and the pleasure-ground at the end of the house by a raised mound of earth, covered with evergreens and rock-plants. This is a great improvement to what formerly existed; but, considering the massiveness of the mansion, a stone wall from the corner of the house to join the sunk fence would have been more in character. That might have been topped with evergreens as at the Hyde. A gate at the corner, to appear as if of stone, or of massive iron bronzed, would be more like the house than a simple wire gate. Secondly. The flower garden, as seen from the windows and terrace, would have been more telling if it had a background of single specimens, or groups of evergreens. At present the eye sweeps over the beds with nothing but the narrow grass verge between the walk and the sunk fence, and the bare park beyond to give relief. Lately, some largish groups of Pinuses have been planted in the park, at no great distance from the sunk fence; and whatever else they may do, they will help to give that relief of a background as they grow up. To be convinced of the advantage of this, it is only necessary to leave the terrace and notice the same beds under similar conditions from the park, with the green grass bank and the house as a background, or to stand on the lawn a good distance on the east side of the beds, there being a background on their west side of single trees and groups of evergreens. Thirdly. This want of a background can hardly be avoided, owing to the beds occupying the space between the bank and surrounding walk, and the nearness of that walk, averaging three or four yards from the sunk fence. I need not repeat what I have several times said of the seeming incongruity of sinking a wall as a concealed boundary, and then taking a walk so near to it that you cannot help seeing it, and looking

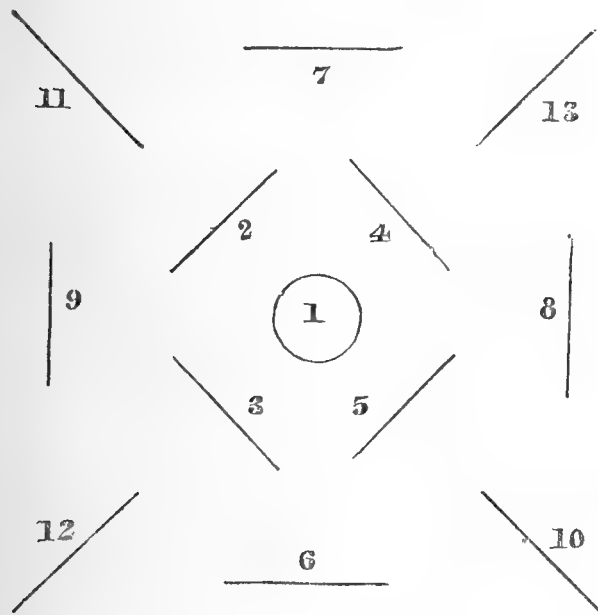
upon the ditch thus formed. Were the wall not only sunk, but raised a couple of feet or so above the lawn level, a clearly defined boundary, ornamental or otherwise, would at once be apparent, about which there could be no mistake. Were it necessary that the pleasure-grounds should not be more extended, that at the front of the house might have been widened, and less taken in at the eastern end. The fence would then have been a ha-ha in earnest; and a few single specimens, and several small groups, would have acted as a background, and not interfered with the view of the park.

FIG. 2.



Half of flower garden as seen from the terraces. Group on the other side of walk being the same as respects the arrangement of the beds.

FIG. 3.



Simple mode of showing the grouping of fig. 2, by straight lines instead of engraving the clumps. This would convey a better idea than mere description, and I fear that engraving even rough plans would be expensive.

The reader will follow all this the better, if he will suppose the line, fig. 1, going through the centre of the flower garden, with two groups, both the same as fig. 2, one placed on each side of the walk, and occupying the space between the boundary walk and the grass bank, with a sufficiency of lawn all round them. As first made in Mr. Busby's time, the figure was more artistic, there being at least two Prince's Feathers with a centre and two spreading wings, and it was found difficult at times to get these three or four joined figures exactly the same in height. Mr. Peacock has altered the figure into one more simple, and I think more telling, just because of its simplicity; and every clump being distinct in itself, as much variety of colour as possible is thrown in, compatible with a cross-balancing system of planting. Each

group is distinct in itself, and not a reflex of the other. That on the west side of the walk is as follows:—

1. An elegant roundish basin, some two feet and a half in height, similar to those shown at Chiswick last season by Seeley, with *Frogmore Scarlet*,—the white material of the sides taming down the scarlet sufficiently.

2. Yellow *Calceolaria*.

3. *Prince of Orange Calceolaria*.

4. *Flower of the Day Geranium*.

5. ditto ditto.

6. White *Ivy-leaved Geranium*, and *Mrs. Holford* white *Verbena* mixed.

7. ditto ditto.

8. *Putteridge* dark *Petunia*.

9. *Countess of Ellesmere Petunia*.

10. *Mangles' Variegated Geranium*, and *Géant des Batailles Verbena*, mixed.

11. *Mangles' Geranium*, and *Model Verbena*.

12. *Lobelia speciosa*.

13. *Mrs. Parsons Verbena*, bluish purple.

Here, on account of the white centre, &c., 4 and 5, might have been *Petunias* without any disadvantage. The other side was thus planted:—

1. *Frogmore Scarlet*.

2. *Ariosto Verbena*.

3. *Superba Petunia*, fine small dark.

4. Yellow *Calceolaria*.

5. ditto.

6. *Lobelia speciosa*.

7. *Miss Nightingale Heliotrope*.

8. Pink *Ivy-leaved Geranium*, and variegated *Pink*, mixed.

9. ditto.

10. *Golden Chain Geranium*.

11. ditto.

12. *Frogmore Improved Scarlet Geranium*.

13. ditto.

These groups were well done, the beds of one colour being more telling than the mixed ones; and whilst all were fair and some very fine, the bed of *Ariosto Verbena* was the most beautiful and symmetrical bed of that flower I ever saw, and Mr. Peacock told us it grew so almost naturally, with scarcely any assistance in the way of pegging or training.

The conservative wall is clothed with *Magnolias*, *Bignonias*, *Ceanothuses*, *Roses*, *Clematis*, &c., and a narrow border in front is ribboned, but not thickly, so that the individual plant can be seen thus forming a variety in the modes. Opposite the pallisaded walls, a row of tall *Hollyhocks* were grown with *Dahlias*, *Calceolarias*, and *Geraniums*, and blue *Campanula Carpatica* and *Golden Chain* in front. In the beginning of September, this long row of *Campanula* was so fine, that we are sure if our friend Mr. Beaton had seen it, he would have owned that it could be managed out of Suffolk.

I have left no room to chronicle matters inside the walls, further than to say that *Peaches*, *Nectarines*, and *Plums* were a good crop; that *Pears*, &c., on dwarf standards this season were thin, that a fine espalier plant of the *Anwell-souring Apple* is about seventy feet in length; that *Pine-Apple* plants were healthy and productive, and the range of plant-houses well stored with gay flowers. This range is as near as may be a model for growing and showing off plants, and is heated so as to have stove plants at one end and greenhouse plants in the other half. Width about fourteen feet; span roof; height of sides six feet, fully half of glass, made to open, and ventilators also in the wall, close to the heating pipes; roof in two sashes, top one made to slide; shelf on two sides, twenty inches wide; pathway three feet, and centre flat-table five feet wide, that table being about three feet from the floor. Close to these in the same line is another range of a house divided in two, sunk a little in the ground, and with means of giving bottom heat to a pit in the centre, as well as pipes for atmospheric heat. Vines are growing in these houses, and *Figs*, &c., in the beds. In these beds fine specimens of *Roses* were grown, but they required such coolness as to interfere with the *Grapes*. The fine plants have, therefore, been turned out, and the *Grapes* are this season very good in consequence. The short end of the parallelogram consists also of two houses, but lean-tos. One of these is divided so as to make a *Peach-house* at one end, and the other is an *omnium gatherum* for all sorts of early fruit, there being a pit for fermenting matter in the centre, Vines planted in front, and *Nectarines*, *Peaches*, and *Figs* on the back wall. The roots of the front Vines were raised and fresh

planted in August, the house being shaded a little at first. Mr. Peacock is not afraid of this process. The other house is a large vinery for late fruit, with the floor all flagged. Mr. Busby, though growing fine crops, thought the leaves were too large. Mr. Peacock also thought the roots were too deep, and raised and replanted the roots in fresh soil last September, using abundance of broken bones from the kennel. The Vines have carried a full, well-coloured crop this season, and may be expected to improve. The roots of the early house will now be making growth freely. The border made last autumn from the fresh turf, &c., employed, fermented a little and gave a gentle heat, perceptible on applying the hand to the trial-stick for many weeks afterwards.

R. FISH.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 10.)

PEARS.

Brown Admiral. See *Summer Archduke*.

BROWN BEURRÉ (*Beurré Gris*; *Beurré Dorée*; *Beurré d'Amboise*; *Beurré Roux*; *Beurré du Roi*; *Beurré de Terwerenne*; *Badham's*; *Isambert le Bon*).—Fruit large, obovate. Skin yellowish-green, almost entirely covered with thin brown russet, and faintly tinged with reddish-brown on the side next the sun. Eye small and open, set in an even, shallow basin. Stalk an inch long, set in a small, round cavity, with generally a fleshy lip on one side. Flesh greenish-white under the skin, but yellowish at the centre, tender, buttery, with a rich piquant flavour and musky aroma.

A well-known pear of first-rate excellence, ripe in October. The tree requires to be grown against a wall to have the fruit in perfection; but it succeeds very well as a dwarf in a warm situation.

Buchanan's Spring Beurré. See *Verulam*.

Bujaleuf. See *Virgouleuse*.

Bujiarda. See *Summer Thorn*.

De Bure. See *Bellissime d'Hiver*.

BURGERMEESTER.—Fruit large, oblong or pyramidal, curved, and very uneven on the surface; round at the apex and knobbed about the stalk. Skin yellowish-green, entirely covered with rough russet. Eye very small, set in a shallow basin. Stalk an inch long, obliquely inserted. Flesh yellowish, melting, juicy and sweet, with a fine musky flavour.

A good second-rate pear, ripe in November.

De Cadet. See *Bergamotte Cadet*.

CAILLOT ROSAT (*English Caillot Rosat*; *King Pear*).—Fruit above medium size, pyriform. Skin smooth, greenish-yellow in the shade, and quite covered with a brownish-red cheek and streaks of brighter red on the side next the sun. Eye open, set in a shallow cavity. Stalk three quarters of an inch long. Flesh tender, very juicy and melting, sweet, and nicely perfumed.

A nice early pear, ripe in August; and the tree is an excellent bearer. This is not the Caillot Rosat of the French, which is the same as our *Summer Rose*.

CALEBASSE (*Beurré de Payence*; *Calebasse d'Hollande*; *Pitt's Calebasse*).—Fruit medium sized, oblong, undulating in its outline. Skin yellow, covered with thin grey russet in the shade, and cinnamon-coloured russet next the sun. Eye open. Stalk an inch and a half long, obliquely inserted, with a fleshy lip on one side. Flesh crisp, juicy, rich, and sugary. Ripe in October.

Calebasse Bosc. See *Beurré Bosc*.

Calebasse Carafon. See *Calebasse Grosse*.

CALEBASSE DELVIGNE.—Fruit above medium size, pyriform. Skin yellow, strewed with cinnamon-coloured russet. Eye open, with stout segments, set in a shallow basin. Stalk short and stout. Flesh white, rather coarse-

grained, juicy, melting, with a rich and perfumed flavour. Ripe in October.

CALEBASSE D'ÉTÉ.—Fruit medium sized, pyramidal. Skin yellow, covered with brown russet. Flesh white, half-melting, very juicy and sweet. A good early pear, ripe in September.

CALEBASSE GROSSE (*Calebasse Carafon*; *Calebasse Monstre*; *Calebasse Monstrueuse du Nord*; *Calebasse Royale*; *Triomphe de Hasselt*; *Van Marum*).—Fruit very large, sometimes measuring six inches long, pyramidal. Skin greenish-yellow, considerably covered with dark grey russet in the shade, and entirely covered with light brown russet on the side next the sun. Eye small, set in a pretty deep basin. Stalk an inch long. Flesh coarse-grained, crisp, juicy, and sweet. Ripe in October. Its size is its only recommendation.

Calebasse d'Hollande. See *Calebasse*.

Calebasse Monstre. See *Calebasse Grosse*.

Calebasse Monstrueuse de Nord. See *Calebasse Grosse*.

Calebasse Royale. See *Calebasse Grosse*.

Calebasse Sterckmans. See *Beurré Sterckmans*.

CALEBASSE TOUGARD.—Fruit medium sized, sometimes large, pyramidal and curved, uneven in its outline. Skin greenish-yellow, entirely covered with brown russet. Stalk short and thick. Flesh yellowish-white, crisp, juicy, and sweet. Ripe in October and November.

Calebasse Vasse. See *Beurré de Capiaumont*.

De Cambron. See *Glou Morceau*.

Canning. See *Easter Beurré*.

Canning d'Hiver. See *Easter Beurré*.

Capiaumont. See *Beurré de Capiaumont*.

Captif de St. Helène. See *Napoléon*.

CASSANTE DE MARS.—Fruit produced in clusters, below medium size, roundish-obovate. Skin deep yellow, speckled and traced with light brown russet. Eye large, and wide open. Stalk about an inch long, inserted without depression. Flesh yellowish-white, crisp and breaking, juicy, sweet, and richly flavoured.

An excellent pear for so late in the season. Ripe in April and May.

CATILLAC (*Bon Chrétien d'Amiens*; *Chartreuse*; *Grand Monarque*; *Gros Gilot*; *Monstrueuse de Landes*; *Téton de Venus*; *Bell Pear*; *Pound Pear*).—Fruit very large, flatly turbinate. Skin at first of a pale green colour, changing to lemon-yellow, with a tinge of brownish-red next the sun, and covered with numerous large russet specks. Eye open. Stalk an inch and a half long. Flesh white, crisp, gritty, and with a musky flavour.

One of the best stewing pears, in use from December to April.

CATINKA.—Fruit medium sized, obovate. Skin of a fine deep lemon-yellow colour, thickly covered with large cinnamon-coloured freckles and tracings of russet. Eye rather small, and open. Stalk three quarters of an inch long. Flesh yellowish, melting, but slightly gritty, juicy, very sugary, with a rich full flavour, and a fine aroma of the rose.

A very first-rate pear, with rich saccharine juice, ripe in December.

Chambers' Large. See *Uvedale's St. Germain*.

Chambrette. See *Virgouleuse*.

CHARLES D'AUTRICHE.—Fruit large, roundish, handsome, and regularly formed. Skin greenish-yellow, thickly covered with russety specks and thin patches of grey russet; and with a few streaks of faint red on the side next the sun. Eye open, set in a smooth shallow basin. Stalk an inch long, scarcely at all depressed. Flesh tender, half-buttery and melting, juicy, sugary, and richly flavoured.

A dessert pear, ripe in October. This name is by the French sometimes applied to *Napoléon*, but erroneously.

CHARLES VAN HOOCHTEN.—Fruit large, roundish-oval,

even in its outline. Skin of a uniform straw colour, considerably covered with large russety dots, and traces of pale brown russet. Eye wide open. Stalk an inch long, slender. Flesh white, coarse-grained, gritty, half-melting, and not very juicy; sweet, sugary, and rather richly flavoured, and with a musky perfume. Ripe in the end of October and November.

CHARLOTTE DE BROUWER.—Fruit large, roundish, inclining to ovate, similar in shape to a large *Ne plus Meuris*. Skin entirely covered with a coat of light brown russet, with a little of the yellow ground shining through on the shaded side. Eye very small, with short, erect segments. Stalk very short, placed in a knobbed cavity. Flesh white, half-melting, and rather crisp, very juicy, but very astringent. Ripe in October and November.

CHARNOCK (*Drummond; Early Charnock; Scot's Cornuck*).—Fruit small, pyriform. Skin greenish-yellow in the shade, and entirely covered with dark dull red next the sun. Eye small and open. Stalk fleshy, obliquely inserted. Flesh yellowish, half-buttery, juicy, sweet, and with a high aroma.

A Scotch dessert pear, ripe in September, but soon becomes mealy.

Chartreuse. See *Catillac*.

Chaulis. See *Messire Jean*.

(To be continued.)

PLANTS FOR THE BACK WALL OF A SMALL GREENHOUSE.

ON the back wall of my little conservatory is a border or pit, eight feet long by two feet broad. The wall behind is six feet high to the foot of the rafters. On this I have in the centre an Ivy-leaved Geranium, which has grown so obstreperously rampant that I have served it with notice to quit. I shall give it a first-rate character, however, for a roomy situation. On one side of the Geranium I have *Clematis Sieboldi*, which has run up the wall and half the rafter this season, and bloomed famously. On the other side *Tacsonia ignea*, raised from seed in spring last year. It has three stems, say ten feet long, and plenty of foliage, but not the slightest hint of a flower! I mean to give it another year, and then enter it among my select list of humbugs. Owing to my stupidity or the enterprise of your London nurserymen I have had to make a good many entries there of late. But that is not what I was to consult you about. It is to decide for me among the candidates put in nomination for the vacant place of Geranium Ivy-leaf. The candidates in my mind are:—1, *Physianthus albus*, a climber I saw the other day in an out-of-the-way place, with which I can find no one acquainted, and in no catalogue. It has a leaf not unlike *Hardenbergia monophylla*; and its flowers, which are profuse from the axils, are pure white, and the exact shape of the prettiest vase you can imagine. 2, *Eugenia Ugni*. This will not do out of doors here (Dundee); and as I have a largish plant which seems supplicating more pot-room, it occurs to me the back border would be clover to it. 3, I have seen a *Heliotrope* look well on a similar position: its fragrance would be an object if I could be sure it would not get naked or unsightly at times. Such are my candidates (in the conservative interest); but if you will kindly bring forward another, and put him in over their heads I shall not demur.

When you are in the way of answering, would you permit me to ornament the edge or whole surface of the border aforesaid by small bulbs or Mignonette for early spring effect, or would such a practice rob or injure the roots of the climbers? The house, I should say, is kept just clear of frost in winter.—MAC.

[As your conservatory is small, the *Tacsonia* would be rather rampant, and would bloom better on the rafters than against the back wall. Ripen these shoots as well as you can by refraining from watering. Nip out the points in December, and a foot or so of the end of the shoot in spring; and most likely the young shoots next season will show bloom. In such a house the *Heliotrope* would be apt to look bare by losing its foliage in winter. Whatever plant you use you should, by brick divisions, give it a place to itself, so that you can treat the roots just as you wish. The *Acacia armata* would cover the wall nicely with its dark-green foliage in winter, and its yellow flowers in spring. The

Physianthus we know very well, and we fear it would be rather rampant. Its seed-vesel is as singular as the flowers. For winter blooming we would prefer *Habrothamnus elegans*; for summer blooming the sweet *Mandevilla suaveolens*. Unless your *Eugenia* were pretty well up the back wall, it would scarcely get light enough. We would prefer giving it a larger pot, so that we could give it a sunny spot in winter, even. We would also grow Mignonette in pots instead of sowing it on such a border, as it too would damp in winter from being so far from the light. We should not have the same objection to bulbs; but we should bring them on in small pots first, and place them in the pots on the border, and cover all over neatly with moss. This, with care in watering, would not interfere at all with the roots in the border. For neatness and beauty why not cover the back wall with Camellias?]

PLANTING SPRING-FLOWERING BULBS.

WOULD you kindly tell us whether we ought to understand from your observations on spring bulbs that it is better to place Tulip roots in the ground in September, and afterwards dig them up and transplant them than to keep them dry until November, and then plant them where they are to bloom?—C. W.

[Decidedly better to put Tulips and every kind of spring flowering bulbs into the ground in September, and by November two-thirds of the bulk of their roots will have been made. Some kinds will flower better that way, and some not; but all of them will make a greater number of offsets and stronger ones, besides adding considerably to the strength and size of the old bulbs. The old Tulips die when they bloom; and when they are kept out of the ground till November their offsets are only half the size and strength they ought to be. All our dwarf Tulips make flowering offsets just as good as those we buy. A friend of ours bought eight Hyacinths in Haarlem in 1831, and kept them till he died in 1853. His method was to have them in the ground by the last week in August. The offsets from these eight "roots" filled his own beds and borders, and he had abundance to give away. The bedding system will not admit of spring bulbs being planted at the proper time; but direct experiments to prove the plan under our own eye have proved conclusively that all these bulbs can be lifted from November to the end of February without the smallest hurt to them or to their offspring. Our Tulips for the vases are generally an inch in leaf above ground before we put them up in the vases at the end of February. Our plan is to make beds in the framing ground of sifted, light, rich odds and ends of composts, old linings, dead rotten vegetable refuse, and all the balls of Cockscombs, Balsams, Cinerarias, Primulas, and what we shake off at pottings. The beds of this are four or five inches thick, and on a hard bottom, which is essential to the safe lifting of the bulbs whenever the beds are ready for them, and the weather is mild and suitable for the work of transplanting. But there is another advantage in buying the bulbs as soon as they come over—one gets the best "roots."]

PROTECTING PEACH TREES WITH GLASS—PRUNING FIG TREES.

I LIVE in a part of the west of Ireland, where Peaches do not do well in the open air, and are a very uncertain crop. I have heard of sashes being placed over the trees against the wall, and should feel very much obliged if any one reading this could give me some information respecting them. I have a south wall, over twenty feet high, near a range of glass; would the sashes do to range with the last house, which is fourteen feet high—that is, would Peach trees grow to that height, and bear well? Should the sashes be of wood or metal? What pitch should they have? and should there be a wall for them to rest on at bottom?

Is this the best time of year for pruning Fig trees?—N. P.

[Had not so much lately been said on orchard or cool fruit-houses we would have entered more on the subject in detail. At present we must just shortly answer your questions.

1. Fourteen feet high will not be too high for Peaches, nor yet twenty feet either; but if you wish the latter quickly filled you must use riders on the wall as well as dwarfs. Good dwarfs will in a few years get up to fourteen feet; but even in that case many would use riders, removing them as the dwarfs grew.

2. The house may with great propriety range with the last house, both as to height and width. The mere form is of no

importance. Such houses are about six feet wide at Trentham, and ten feet upright glass in front, and a hipped roof of glass. At other places the same principle is followed, only the houses are wider. In other places—as at Bicton, Overstone, and Basing Park—the houses have the common lean-to form, and have trees against the back wall, and trees on a low trellis in front, or dwarf trees grown there either in pots or planted out. All these modes answer well if there are the means for plenty of air.

3. For such a house we should decidedly prefer wood to iron; and if front sashes are made to move, and plenty of air secured at top, we should prefer all the roof being fixed, whether in sashes to be moved, or the lath bars being made stronger to remain. If there were front sashes two or three feet in height, the front wall should be merely six inches or so above the ground. If there are no front sashes, but if the roof is a lean-to, and fixed, then the front wall should be at least eighteen inches in height, to permit of ventilators in it.

Figs out of doors might be thinned if too thick; but the final pruning should be left until the spring, after the fruit shows. See what has been said lately on this subject.]

BRITISH POMOLOGICAL SOCIETY.

A MEETING of the British Pomological Society was held on Thursday last at the Hanover Square Rooms, London. Robert Hogg, Esq., Vice-President, in the chair.

The following gentlemen were elected ordinary members:—

Hon. and Rev. THOMAS THURLOE, Baynard's Park, Ewhurst.

Mr. JOSEPH SALTMARSH, Chelmsford.

Mr. MITCHELL, Piltown, Uckfield.

Mr. WM. HOPS, gardener to Lady Caroline Webster, Roehampton.

Mr. SIDNEY FORD, gardener to W. E. Hubbard, Esq., Horsham.

This being the first Meeting held in the new rooms, we may take this opportunity of congratulating the Society on the excellent change that has been made. More commodious, convenient, and agreeable than any they have yet occupied, we see in the step just taken presumptive evidence of increasing prosperity and usefulness.

Prizes were awarded at this Meeting of one guinea, and half a guinea, for the best and second best dishes of *Marie Louise* Pears. There were four competitors, one of which was disqualified by being unripe. The first prize was awarded to Mr. Sidney Ford, gardener to W. E. Hubbard, Esq.; and the second to Mr. Swinerd, gardener to John Swinford, Esq., of Minster, near Ramsgate.

Prizes of one guinea, and half a guinea, were also awarded for the best and second best dishes of dessert Pears of any other sorts, and the first prize was taken by *Beurré Bose*, from Mr. Whiting, of the Deepdene.

Mr. Turner, of Slough, sent specimens of *Salway Peach*, a yellow fleshed variety, large, handsome, and finely coloured. At previous Meetings of the Society fruit of this has been exhibited as late as the 2nd of November in excellent condition; but, this being an early season, it is doubtful whether or not they will be retained so late. The specimens exhibited were very melting, juicy, and deliciously flavoured for a late melting Peach.

Mr. James Veitch, of Exeter, sent specimens of a Seedling Peach. The fruit was small, roundish, and perfectly white. The flesh was melting, very juicy, with a fine piquant flavour and a fine aroma; and was remarkable as possessing the flavour of a Nectarine. It was thought that, as the tree became older, the fruit would be larger; and if it does this, will form a desirable addition to the varieties already in cultivation.

An extensive collection of eighteen varieties of Grapes were received from M. Sahut, Nurseryman, of Montpellier, France; but, unfortunately, they came in such very bad condition, it was impossible to form any judgment on their merits. They were generally completely rotten; and those that were not entirely so were so injured by the mildew as to render the collection completely useless.

Mr. John Salter, of Hammersmith, again sent a bunch of the White Grape known as the *Cochin-China*, and which has been on a former occasion exhibited before the Society. At this meeting it was recognised as the variety that was sent out a few years ago under the name of *Marchioness of Hastings*. Messrs. A. Henderson & Co., of Pine Apple Place, produced a basket of very fine Grapes grown in the open air against a

building, by R. Webb, Esq., Calcot, near Reading. They were certainly very fine large bunches, beautifully coloured, and remarkably well ripened.

F. J. Graham, Esq., of Cranford, again produced a bunch of his Seedling Grape, which still exhibits no disposition to crack in the berries. It was remarkably rich in flavour, and with the marked musky aroma. Mr. Graham also exhibited specimens of *Marie Louise* Pear, which, for richness of flavour, far surpassed those to which the prize was awarded, but they were not intended for competition.

Henry Webb, Esq., of Redstone Manor, Redhill, brought very finely flavoured *Flemish Beauty* Pears, which were also not for competition.

Collections of Apples were brought by Mr. Newton, of Enfield Chase, and several other gentlemen, which, along with other matters, will be reported upon in the Society's circular.

The next meeting will be held at Hanover Square Rooms on the 26th of October.

THERMOMETERS—NAMING GERANIUMS.

NIEREMBERGIA FILICAULIS—WINTERING CANNA.

Will you tell me of a cheap registering thermometer for greenhouse use?

[Mr. Casella, Optician, Hatton Garden, makes a good and cheap registering thermometer.]

If leaves are sent of Scarlet Geraniums, can the kind be named without seeing the flowers?

[Scarlet Geraniums cannot be made out from leaves, or from leaves, flowers, and stalks, so late as this in the season. We had upwards of 300 distinct kinds of Scarlet Geraniums in bloom earlier in the season, not one of which had ever been named. To be quite sure of a name, the best judge of them would need to see a healthy living plant in full bloom, in a pot, or in a bed or border.]

Will old plants of *Nierembergia filicaulis* potted now from beds, live through the winter, to obtain cuttings from in the spring like the Lobelia?

[Yes, if they are carefully taken up.]

I have some plants of *Canna* in a bed, without any sign of flowering. Is it any use to take them up? Will they live through the winter in a cool greenhouse?

[By all means save them. They will keep the same as Potatoes till April. Two circles of *Cannas*, and two more of *Tritoma uaria*, with one circle, or large plant of Pampas Grass, would make a magnificent group; and if each of them had four gallons of water twice a-week, from the end of May to the end of August, or say twenty gallons on Tuesdays and Fridays, you would come out more noble, more exotic, more splendid, and much more gorgeous than any one has yet done in the garden way, as far as we know of. A circle two feet across would do for each of the kinds, to begin with *Canna discolor*, which never blooms, or very seldom—indeed, is the finest of all the fine-leaved plants to plant behind the Pampas Grass, looking from the drawing-room windows. The Tritomas right and left of it, and a little farther back. Just think it over in your mind. We shall be the first to follow suit.]

RAILWAY TRAVELLING AND MUSHROOMING.—“I was travelling last week,” writes a correspondent, “by a railway on the English side of the borders of South Wales, when we happened to pass a field spangled with a most luxuriant growth of Mushrooms. I had hardly remarked the circumstance to my companion, when we felt the train suddenly stop, and looking out to the front we saw, to our astonishment, the driver jump off the engine, vault the fence, and proceed to fill his hat with the treasure. In a moment the guard was over the fence following his example, which, as may be supposed, was infectious, for in less than half a minute every door was thrown open, and the field covered with the passengers, every one of whom brought back a pretty good hatful. Not till this desirable result was attained did we proceed on our journey, some of us wondering whether we had been dreaming; and whether, instead of the Welsh borderland, we were not travelling by some newly constructed forest line in the far west of America. We begged the

guard, who didn't seem quite comfortable about the joke, to have the place entered for the future in his line of route as 'the Mushroom Station.'—(*Guardian*.)

TO CORRESPONDENTS.

CYCLAMEN VERNUM (*J. F. Armstrong*).—You will very greatly oblige Mr. Beaton by sending him a bulb. His direction is "Surbiton, Surrey."

DEAL TIMBER (*G. T. X.*).—The Scotch Fir (*Pinus sylvestris*) produces the Red Deals of our timber-yards; and the Norway Spruce (*Abies excelsa*) produces the White Deals. Of the Austrian Pine (*Pinus Austriaca*), Mr. Gordon says in his "Pinetum," "the timber is strong, tough and resinous." We do not know *Pyrus Mallardii*.

STEPHANOTIS FLORIBUNDA SEEDING (*R. B. L.*).—It is not common for the *Stephanotis* to seed in cultivation; but many such instances are on record. We ourselves ripened seeds of it ten or twelve years back. The long Pear-shaped fruit is the seed-pod, and the seeds are placed most beautifully in a bed of much finer stuff than the finest floss silk. The seeds may be the most deadly poison in the vegetable kingdom, or they may be harmless. The plant belongs to a suspicious family.

NAME OF AN AMARYLLID (*W. H. M., Killala*).—Your bulb is *Vallotta purpurea*, a very different thing from *Amaryllis aurica*, which is a Hippeaster. A child might be soon taught to tell the difference between two hundred kinds of Hippeastrum, which have been flowered, and the only two *Vallottas* known to us. The Equestrian Stars (the meaning of Hippeasters) have the stamens fixed to the bottom of the flowers, and free all the way up. The *Vallottas* have them fixed there and to the sides of the flower half the way up, or adnate, as botanists term it.

PHLOX (*A. Roberts*).—The flower was smashed by the post office; but if not, we could not name a flower of such common aspect from a head.

CHAMPAGNE GOOSEBERRY (*J. C. A.*).—There are three Champagne Gooseberries—the white, the yellow, and the red. You may get either or all of them at any respectable nursery where attention is paid to the cultivation of fruit trees.

GARDEN PLAN.—*S. E. L.* omitted to indicate the situation of the house, or drawing-room windows, or where the flower garden is mostly seen from, without which his style of garden cannot be understood or planted. If he let us know to which of the figures the drawing-room faces; to 23—32? to 11—35? to 16—18? or to 3—12, then we will help him.

GRUBS, &c. (*A. M. R.*).—The Leathercoat, or Underground Grub. Nitrate of soda strewed round the plants is said to destroy this marauder; but we examine the soil where a Cabbage plant is eaten off, kill the grub, and plant another Cabbage. The insect (No. 2) is the Vine-scale (*Coccus vitis*), to be killed by a mixture of sulphur, soft soap, &c., as often prescribed for the scale in these pages. No. 3, your plant is *Aster lividus*.

NAMES OF PLANTS (*A Correspondent*).—The variegated leaf is from the *Croton variegatum*. The other deformity, or bit of a leaf, appears to us to be from a species of *Caladium*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

OCTOBER 11th, 12th, and 13th. WORCESTERSHIRE. *Sec.*, Geo. Griffiths 7, St. Swithin Street, Worcester. Entries close September 24th.
NOVEMBER 18th and 19th. WEST OF SCOTLAND (Pigeons and Canaries). *Sec.*, Thos. Buchanan, 74, Argyle Street, Glasgow.
NOVEMBER 19th to 23rd. CRYSTAL PALACE. (Canaries and British and Foreign Cage Birds). *Sec.*, Mr. W. Houghton.
NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. *Sec.*, Mr. J. Morgan, Bingley Hall, Birmingham.
JANUARY 7th, 1860. BRADFORD. SINGLE COCK SHOW. *Secs.*, Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford.
FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). *Sec.*, Mr. W. Houghton. Entries close Jan. 14th.

BENEFITS FROM POULTRY SHOWS.

THE records of the different Shows prove the progress that is being made by poultry. It may not be uninteresting to follow it, and to trace such points as may enable us to communicate useful knowledge to beginners, and, it may be, to give some hints to those who are more advanced. But our duty is not only to exercise the formed soldiers, but to beat up for recruits.

For that reason we may point out some of the results of the pursuit; and we are more particularly led to do so by noticing the weights of the Aylesbury Ducks at the recent Shows: they have been from 7 lbs. to 8 lbs. each, and this not the result of excessive feeding or of ugly fat, but good honest framework, covered only with sound meat. Goslings commonly weigh from 14 lbs. to 16 lbs. each. Dorking fowls have increased 2 lbs. each in weight. All these results have been accomplished by choosing those breeds that are most profitable from their aptitude to fat, and this aptitude has been discovered through Exhibitions. In poultry, as in cattle, roots, and other things, premiums have been necessary to stimulate exertion, and competition has completed whatever prizes left undone. Exhibitions have also provided a sale for good specimens at remunerating prices; and those to whom it is an object could give cheering accounts of

the sums annually brought from some of our large Shows. If, then, Exhibitions have been thought useless by any of our readers, we think the facts we have stated may convince them that they have accomplished great results.

If any statistics could be arrived at showing the increase in the weight of poultry now brought to market, compared to what it was twelve years ago, before Birmingham set the example, it would astonish even those most enthusiastic in the pursuit. It has also defined the properties of every breed, and has taught people to choose those most suitable to their soil, conveniences, or requirements.

On one point we remain in the dark. While we know the exact number of eggs imported, and are aware that France, Holland, Belgium, and even parts of Italy, are ransacked to supply us, we know nothing of the number produced at home. We are sure of one thing—if more care were used by agriculturists, and those who have opportunity for keeping a large number of fowls, to choose the winter stock in the preceding spring, the number might be greatly increased. This has been rendered easy by the introduction of Brahmas and Cochins, both winter layers, and both breeds that do well in every respect in confinement. Yet there remain places where eggs are not to be had in the winter. Railways have annihilated distance; and just as milk is now sent to London from every part, so attention to the hints we have given above would, through the winter, make a pretty weekly return in the shape of new-laid eggs sent to the metropolis.

Speaking to the initiated, and even to some old exhibitors, we would remark on the evil of crooked combs in the Cochin classes. Whatever the other merits of the birds may be, this is a disqualification; and the only thing that can justify the award of a prize to such a pen is a class where there is not a perfect one. In Dorkings the prevalent mistake is to send them so fat, that symmetry and condition are alike sacrificed. We know the tendency in these birds to fatten, but that which is put on while running about in perfect health is firm, and exists with hard feather, bright eye, and perfect condition; while the fatted bird is dull, heavy, loose feathered, and capable only of squatting in a corner of the pen, instead of coming forward to challenge a prize. In the Polands crooked and hump-backs must be avoided; they are disqualifications, as are combs, spikes, or gills in the cocks. It is hardly necessary to say now that trimming in Spanish fowls is a fatal step.

We will conclude with two remarks applicable to all classes. In those where weight is an essential it is far better to make the sacrifice of one or two pounds than to send a faulty bird because it is heavy. Where feather is most important it is better to have a little difference in that respect, than absolute similarity and perfection in that particular at the expense of a crooked back. These remarks are caused by observation at recent Shows; and while we know that perfection is not to be attained, we are anxious our readers should be as near to it as may be.

WESTON-SUPER-MARE POULTRY SHOW.

THIS Society held its Exhibition on Wednesday, the 5th inst. The following is the list of the awards:—

SPANISH.—First and Second, J. R. Rodbard, Aldwick Court, near Bristol.

DORKING (Coloured).—First, J. R. Rodbard, Aldwick Court, near Bristol. Second, Rev. F. Meade King, Walford House, near Taunton. Commended, Miss Wilcox, Nailsea Court, near Bristol; H. D. Harper, Sherborne.

DORKING (White).—First and Second, Rev. G. F. Hodson, North Pether-ton, near Bridgwater. Highly Commended, J. I. Coleridge, Manor House, Ottery St. Mary, Devon. Commended, Mrs. Fookes, Whitechurch, Blandford, Dorset.

COCHIN CHINA (Buff).—First and Second, Mrs. Fookes, Whitechurch, Blandford, Dorset.

COCHIN-CHINA (any other colour).—First, Rev. G. F. Hodson, North Pether-ton, near Bridgwater. Second, Mrs. Fookes, Whitechurch, Blandford, Dorset. Highly Commended, B. J. Ford, Ide, near Exeter.

GAME (Black-breasted and other Reds).—First, H. Williams, High Street, Weston-super-Mare. Second, W. J. J. Fox, Devizes. Highly Commended, A. Foster, North Pether-ton; J. H. Braikenridge, Chew Magna, near Bristol; Hon. G. Howard, Charlton near Malmesbury. Commended J. H. Braikenridge, Chew Magna, near Bristol.

GAME (any other variety).—First, Rev. G. S. Cruwys, Cruwys Morchard Court, Tiverton. Second, J. R. Rodbard, Aldwick Court, near Bristol (Black Game).

HAMBURGS (Gold and Silver-spangled).—First, W. J. Newich, Hinton St. George, near Ilminster. Second, H. Leworthy, St. John's Cottage, Newport, Barnstable.

HAMBURGS (Gold or Silver-pencilled).—First, T. Keable, Rowdefield Farm Devizes. Second, Messrs. J. and W. Holland, Sansome Walk, Worcester. Commended, Miss H. Meade King, Walford House, near Taunton.

POLANDS (of any colour).—First, G. Ray, Ivy Cottage, Minstead, Lyndhurst, Hants. Second, J. Hinton, Hinton, near Bath. Highly Commended, G. S. Fox, the Court, Wellington. Commended, G. Ray, Ivy Cottage, Minstead, Lyndhurst, Hants.

ANY OTHER VARIETY.—First, J. J. Fox, Devizes (Malay). Second, J. Hinton, Hinton, near Bath (Brahma Pootra). Highly Commended, Miss L. Crawshaw, Caversham Park, near Reading (Silky Negroes).

BANTAMS (Gold-laced).—First and Second, Rev. G. F. Hodson, North Pethererton, near Bridgwater.

BANTAMS (Silver-laced).—First, H. D. Bayley, Ichwell House, near Biggleswade, Beds. Second, Rev. G. F. Hodson, North Pethererton, near Bridgwater. Highly Commended, Rev. G. F. Cruwys, Cruwys Morchard Court, near Tiverton.

BANTAMS (Game).—First, H. D. Bayley, Ichwell House, near Biggleswade, Beds. Second, J. R. Rodbard, Aldwick Court, near Bristol. Highly Commended, J. Rodbard, Aldwick Court, near Bristol; J. E. Mapplebeck, Highfield, Mosely Road, Birmingham. Commended, W. B. Tegetmeyer, Muswell Hill, London.

BANTAMS (any other colour).—First, Rev. G. S. Cruwys, Cruwys Morchard Court, near Tiverton (Black Bantams). Second. No competition.

DUCKLINGS (Aylesbury).—First and Second, Mrs. Seamons. Highly Commended, Mrs. Fookes, Whitchurch, Blandford, Dorset. Commended, Miss Willcox, Nailsea Court, near Bristol.

DUCKLINGS (Rouen).—First and Second, W. E. Blackburn, Banwell. Highly Commended, J. R. Rodbard, Aldwick Court, near Bristol; Commended, T. Keable, Rowdefield Farm, Devizes; Mrs. Fookes, Whitchurch, Blandford, Dorset.

DUCKLINGS (any other variety).—First, J. H. D. Bayley, Ichwell House, near Biggleswade, Beds. Second, C. Edwards, Brockley Court, near Bristol (Wild Call Ducks). Highly Commended, C. Edwards, Brockley Court, near Bristol (Wild Ducks).

GOSLINGS.—First, Hon. G. Greville Howard, Charlton Malmesbury. Second, J. Hill, Brockley.

TURKEYS.—First, Rev. G. F. Hodson, North Pethererton. Second, Miss L. Crawshaw, Caversham Park, near Reading. Highly Commended, Miss J. Milward, Newton, St. Loe, near Bath.

JUDGE.—Mr. Ed. Hewitt, Spark Brook Birmingham.

PROMOTING THE WHITE FACE IN SPANISH FOWLS.

CAN you inform me of any method of bringing out the white in a Black Spanish fowl's face? Some of my friends recommend confinement in a dark room, and to feed with a good deal of meat, very highly seasoned with pepper. The meat seems reasonable enough, but the confinement in a dark room would, in my idea, only cause damage to the feathers; and the pepper, in such a large proportion, would, I should say, undermine the constitution; and, if this method had to be pursued before every Show, would ultimately kill the fowl.—T. P. W.

[Confinement in a darkish place is very good for Spanish fowls for a week before they go to an Exhibition; but with first-rate birds it is not absolutely necessary. We are quite opposed to raw meat and pepper, and should think it highly injurious to the birds. White peas are often given, but we think it is only a fancy. Take them up from their run ten days before they go to a Show, and put them in a shed with a softened light. If they are in the dark, the cock's comb often falls over; and if they are put on boards they lose condition. If in their run their faces are white all over, their combs red, and their condition good, let well alone. The confinement will sometimes improve the colour of a face; but it will not turn a red one white. Feed on ground oats.]

PHYSICKING FOWLS.

WHAT ought I to have given to a Black Hamburgh cockerel in order to effect a cure under the following circumstances?—I received the bird by rail from a distance, and on his arrival he did not appear to have suffered much from the journey, as he had a capital appetite and appeared lively. However, two days after his arrival he began to mope about, and appeared altogether out of sorts. I tried toast and ale, and tonics, but he continued to get worse until he died,—a week after being taken ill. He continued to eat well until the day but one before his death, and when dead was found to have hardly any flesh on his bones.

I shall also be obliged if you will inform me as to the points by which Black-red Game Bantams, both cock and hen, are judged at the principal Poultry Shows? Also, what coloured legs are considered best; and the highest weight allowed for exhibition birds?—GAME BANTAM.

[In your treatment you omitted the most important part. Whenever a fowl is failing, the first step should be to administer a dose of castor oil—a table-spoonful. Having neglected this, your tonics only added to the disease, and the food failed to nourish or even to keep him alive.

Black-red Game Bantams should be Game fowls in miniature,

in colour, and carriage. The legs may be of any shade, provided all in the pen are alike. Yellow are the most showy; but we should say willow or blue are the most admired. Many amateurs like white legs. It is essential that they be close and hard-feathered, and that the hens have undoubtedly single and straight combs, well serrated. The smaller they are the better. It is a great point; but no weight has been fixed for them.]

SADDLE OF DUCKWINGED GAME COCK.

I AM puzzled to know the meaning of Mr. Brent's remark in reviewing the Crystal Palace Poultry, respecting the prize Duckwinged Game Cock, which, he states, "was a perfect model, but of bad colour, the red on the back showing a cross with the Reds." Is it possible that he means the beautiful copper or maroon back is a defect, merely the result of a cross? or is it some peculiar shade of red intermingled with the maroon that is offensive to him? I feel interested to know, being—THE PURCHASER OF THE BIRD.

[We consider the copper saddle quite correct. As we have before stated, those without that mark are a separate breed, and the two are as distinct as Gold and Silver Hamburgs.]

REARING CHICKENS.

IN a former number you invited your readers to state their experience in rearing chickens this season; and as ours has in it a feature of some peculiarity, I venture to mention it.

We have a convenient poultry-yard, dry, and well gravelled, with a plot of grass in it. Also, a smaller enclosure of the same description, which we appropriate to sitting hens and chickens.

In April last, having already two small broods, for want of room in our usual place, we sat two hens on Spanish eggs, in an empty stall in our stable.

The stall was cold and damp, though its neighbour was tenanted by a pony, and we did not augur much success. At the same time means were used by placing boards and plenty of straw under the hens to keep them warm.

In the beginning of May, the two sittings were hatched within a couple of days of each other, one hen producing ten and the other nine chickens. The difficulty was to know what was to be done with them. The stall seemed a very unsuitable place, and at last we contrived to move one brood to the chicken-yard. The other we were constrained to leave to its fate in the stall. The stable, however, having an entrance into the garden, the hen was in fine weather put out with her brood on the lawn in the day, and returned to the stall again in the evening.

For some time both broods appeared to thrive, but in about ten days or a fortnight, the favoured one, as we thought, in the chicken-yard exhibited symptoms of sickness. We fed plentifully with bread and ale, and other nourishing diet, but in vain, and it appeared that we should, as we had done the year before, lose all our Spanish chickens. Two died and others were fast declining. At the same time, however, it struck us that there were no symptoms of sickness or defection about the brood in the stable, all of which seemed in full health and vigour. We were led, in consequence, to try the experiment of removing the hen with the sickly brood to the stable. The effect was extraordinary. In a day or two the sickly chickens began to look better, gained strength from day to day, and in a week became as well and vigorous as the others. We lost no more, and with the exception of one chicken accidentally drowned, we have both broods now. Both the hens were placed out on the lawn in fine weather, and the chickens allowed to run in the garden, to which they contributed a pretty and most amusing object, and we only regretted when they got so large as to oblige us to dispense with them.

At the time this experiment took place the weather was fine and warm, and the well-sheltered yard seemed infinitely the preferable place for successful rearing. We subsequently, however, tried the effect of the stable again upon a small brood of Dorkings, which were sickly, and with the same good result as before, and we have not lost a chicken which has had the benefit of what we now call our hospital.

The question is, to what the effect which I have mentioned is attributable, whether to temperature, or atmosphere; and I believe it to be entirely due to the latter. The gases of the stable in my opinion constituted the restoration. I would recommend, however, the experiment to such of your poultry-keeping readers as may have the convenience of an empty stall in a stable, where a horse or pony is kept.

We have raised altogether five broods this season. Of the first, a brood of nine Dorkings, hatched early, we lost all but two. Of the second, a brood of ten Silver-spangles, nine grew up healthy and strong. Of the third and fourth, being the nineteen Spanish which I have mentioned, we have reared sixteen; and of the fifth, a brood of seven Dorkings, we have raised five.

Our situation is on a clay soil, and, although our yard is thoroughly drained and well gravelled, we have not succeeded with either Dorkings or Spanish before the present year, and we are obliged to attribute to the accident of our having discovered the salutary influence of the stable manure of our success during the present season.—RUS IN URBE, *North Wales*.

DUCKWING GAME FOWLS.

"WHICH do I pref-A-r Sir? Why there can't be no mistake about it — them beautiful bright Copper-backed 'uns to be sure — they're like the setting sun in a July evening! No, no, Sir, I nEver could stand them white-backed 'uns, there's no-R-thing fancy-like in 'em, and their hIns are jIst like tame doWs, with their white hIds, and pale brIsts — pretey enough to be sure, but not Warmint-looking enough for game blood. Tell me of a Hin like that A-re (pointing to one before him) with a good brick brIst, and a fiery red eye that look as if sho'd Ate live b-A-rds, they're the gAls for pluck, and to breed you some trimmers. Lor Sir I could stand for Iver to look at 'em, they are so trim and shapely! Why there 'aint one among 'em that don't look more like a pullet than a Hin! Well, Sir, I thank you for the sight of 'em, and I shall think oN 'em for many a long day to come. They S-u-rtainly are a lot of beauties!"

Such was the colloquy, or rather the soliloquy (for once on scent of Game there was no holding him, much less a chance of question and answer) of "an old hand," who chanced about a year ago, when in the yard, to cast his eye upon our Duckwings, and whom I asked, on finding him *knowing*, which he preferred—the Silver or the Copper-backed chickens. Now, although no Cocker, I must admit that the old man struck a responsive chord when he praised the "warmint-look," and graceful bearing of my birds; for though, like most others seeking an ideal beauty amongst cocks and hens, I began my own search with attention to *feather*, and with which object I successively studied the characteristics of the major part of the different breeds of poultry, and then the varieties of the Game breed in particular. I found at last to my great surprise, that *symmetrical elegance* and *high animal courage* (vulgariter *pluck*), were the points that approved themselves to my taste far beyond *mere feather*. But this admitted, a somewhat extended acquaintance with the Game fowl would lead me to decide with equal confidence, that in the Copper-saddled Duckwing, beyond any other variety, will you find the best combination of the three great essentials to Game-fowl perfection,—viz., symmetrical elegance, high animal courage, and undoubted beauty of feather.

The above very pertinent remarks of the old woodman were recalled to my recollection on reading in your impression of the 20th ult., the queries of "ONE WAVERING BETWEEN TWO OPINIONS;" and with the sympathy of one who has been sorely puzzled in such matters in times gone by, I have strung them together for your correspondent's perusal, trusting that they will tend to impart the stability of choice that he seems to seek.—C. G. READ, *Stradbroke, Suffolk*.

WOODSTOCK POULTRY SHOW.

SEPTEMBER 27TH.

As a first Show it was a very creditable one, but open to improvement, which will doubtless be effected on a future occasion, especially if the promoters of it will take for their guide the rules and principles which regulate the great Shows at Birmingham and other places. For want of these, some of the classes were so confused, that the Judge, Mr. J. K. Fowler, of the Prebendal Farm, Aylesbury, whose knowledge and experience of the feathered tribe have gained him a world-wide reputation, was obliged to re-arrange them before he could make his awards. In addition to this, some of the best specimens were exhibited in pens so small that they could not be seen to advantage, and were obliged to be turned out of their pens before their merits could be seen and appreciated.

The most attractive feature in the Show was a series of four

pens, consisting of three Sebright Bantams, three Black Bantams, three White Bantams, and three Silky Fowls, exhibited by the Hon. Miss Dillon, as extra productions. These were very highly commended, and a prize was awarded to the Silky Fowls, which the Judge pronounced to be the finest specimens he had ever witnessed in his long and extensive career. The other pens deserving of special notice were the Turkeys exhibited by the Duke of Marlborough, and Mr. T. Hedges, of Wolvercot. The Coloured Dorking fowls sent by Colonel North, M.P. The Rouen Ducks by his steward, Mr. James Innis. The Silver-pencilled fowls by Mr. John Hutt, of Watereaton. The White Geese by Lord Dillon and Mr. Mark Horn, of Summer Town. The Silver-spangled fowls by Mr. B. Coles, of Ste. ple Aston, and Mr. Sheriff Stevens, of Oxford. The Grey Geese by Mr. Joseph Druce, of Ensham. And the Aylesbury Ducks by the Duke of Marlborough, and Mr. Sheriff Stevens.

The Rev. G. W. St. John, Rector of Woodstock, exhibited *Fenn's Woodstock Alliance Hive*, on the depriving system, without destroying the bees, and admirably adapted for cottagers, besides being within their means.—(*Oxford Journal*.)

PRIZE LIST OF THE BIRMINGHAM POULTRY SHOW.

I HAVE just received the prize-list for the next Birmingham Poultry, &c., Exhibition, and I must confess that I am somewhat disappointed, as I observe additions, in the shape of prizes, for hens and pullets in several classes, whilst my old favourites, the Cochins-Chinas, are not amongst the number. I have long considered that they were not quite dealt with as they deserve at this important Show; more especially in the single cock class, where there are only two prizes, amounting to £3, for *all colours*; whilst the Hamburgs have four distinct classes, with eight prizes, amounting to £12; and the Spanish three prizes, amounting to £6.

The total amount of prizes offered for one variety of Spanish and three varieties of Cochins is the same,—viz., £41.

The number of pens exhibited in these two classes at the last Exhibition was as follows:—

	Cock and Hens.	Single Cocks.	Pens of Hens and Pullets.
Spanish.....	50	36	32
Cochins.....	100	19	No prize offered.

I really cannot see that these numbers justify the present prize list; and even Polands, I observe, have £48 allotted to them, and last year there were only sixty-five pens shown of all varieties.

As it is now, I fear, too late to make any alteration for the forthcoming Show, I trust the Committee will not overlook the matter another year.

I am surprised to find that they still continue that absurd rule which limits each subscriber to four pens. Why not allow each exhibitor to enter *honestly* as many pens as he may wish, and not drive him to the subterfuge, which the Committee wink at, of entering birds in the names of different members of his family?

I would also recommend hamper labels, similar to those sent from the Crystal Palace, with one eye-hole, which are far less troublesome than those with four holes, usually sent from Birmingham.—ALPHA.

P.S.—Since writing the above, I have had the curiosity to look over all the catalogues I have (viz., thirteen) of Shows held since the last one at Birmingham, to see the relative numbers of Spanish and Cochins at other places, and the result of my investigation is—Spanish, 235 pens; Cochins, 402 pens. I must confess that it is far more satisfactory to me than I had anticipated, as the cry of "Cochins are going down," which has been reiterated over and over again, is without foundation.

COLOUR OF GAME COCKS.

LIKE your correspondent "ONE WAVERING BETWEEN TWO OPINIONS," I was rather surprised at your reply to "W. C. W." that the Duckwinged cock with red back or saddle was a pure Duckwing. Now, to be pure, it is necessary that it should be free from mixture. But "the copper-backed or saddle" you now mention, or Red Duckwing, may be produced *ad libitum* from a red cock and grey hen; consequently, is not a pure or distinct colour, but a mixture. It is equally a pure-bred Game cock, but not a pure colour. I would advise "ONE WAVERING"

to refer back to the papers on Game Fowls by "NEWMARKET" and "A NORTH-COUNTRY AMATEUR," and adopt their opinions.

But this week (September 20th) is a still more startling novelty in the way of Game cock's colour. A blue and red bird may be called a Brassy-winged Blue! This is the first time I have heard red colour called brassy. Black-brassy wings are Black cocks, having yellow or brass-coloured shoulders: hence the name. "J. M. C.'s" bird being a mixture between red and blue, or dun, is what is usually known as a Red Dun. Pure Blues or Duns are a very scarce and handsome variety; and a true blue or dun-coloured Game cock or hen should be free from any other admixture of colour.—B. P. BRENT.

[It will be long before breeders, or amateurs, of Game fowls will agree as to colour as indicative of purity. Certain breeds belong to certain localities, and in those places they will always be considered superior to all others for purity and good qualities. This fact is sufficiently proved by the classes provided for them at exhibitions. They are framed to admit all shades and hues; and although the Duckwinged class is that in which most difference of opinion exists, yet we have never before heard that the copper saddle was proof of impurity in this breed. They are far more numerous than the Silvers which lack this mark, and are generally prizetakers at all shows. The manner in which they may be produced is immaterial, as nothing is gained by the production. Such birds would throw back to the breeds by mixing which they were made, while the Copper-saddles breed truly.]

The difference between the bird described by "J. M. C.," and a dun, or a blue dun is, that the saddle and wings are a light red. Hence we think the original name, Blue-red, a good one. The Blue or Dun is now seldom seen. When they are, close inspection will always discover red feathers mixed in the plumage. These do not interfere either with their purity or chance of success; but where the red prevails to the extent it does in this bird, it cannot belong to the Blue or Dun class. Our friend may call it a Blue-red, or a Red Dun, and we will admit both are better than a Brassy-winged Blue. The latter was a careless designation adopted by us with too little consideration. We are obliged by any one watching us, and calling for explanation. Truth and correctness are our objects.]

THE USUAL HONEY-HARVEST—STORE FOR THE WINTER.

If I kept bees with any other object in view than the amusement which they afford I should feel much disappointed after reading of the success that generally attends your correspondents. The following is the result of my experience this year:—

At the close of last season I retained seven hives, all, with one exception, sufficiently stored, in my opinion, to meet their winter requirements. Of these, that one and two others died in the spring, all leaving food. Of those that survived, one gave me in glasses 8 lbs. comb, and weighed, 20th August, 13½ lbs. nett; another yielded in glass and box 14½ lbs. comb, and weighed the same day 11½ lbs. nett; the third in glass, 4½ lbs. comb, and weighed the same day 22½ lbs. nett; the fourth sent out a 4-lbs. swarm on the 12th of July, and weighed 7 lbs. nett on the 28th of September. The swarm I joined to a small quantity (¾ lb.) of bees placed in a hive of comb on the 11th of June, and it weighed on the 20th of August 9½ lbs. nett. On the 10th of June I purchased a cast of 2 lbs., and placed them in a hive containing food and comb, and found on the 20th of August they had not added ½ lb. to their store. A swarm and cast purchased June 15th, 5½ lbs., was put together in a Taylor's bar-hive, and when taken up on the 31st of August yielded 11½ lbs. of honey run.

I have always been at a loss to know how a good season may be ascertained. Will you have the kindness to inform me? I hardly think you will say the present has been a good one with me, for all my hives, except one, must be fed liberally; and this work I have now commenced.

My experience of bee-keeping the last nine years shows that between 8 lbs. and 9 lbs. from stocks, and between 7 lbs. and 8 lbs. for swarms, is the average of run-honey obtained when they are taken up.—B. B., *North Bucks.*

[Your account respecting the average annual quantity of honey produced by your stock of bees is not what would commonly be considered even tolerable, and we must suppose your locality is a very unfavourable one. A swarm of 5½ lbs., hived on the 15th of June, and producing only 11½ lbs. of honey on the 31st of August, is deplorable. The yields of your other

stocks, as detailed, ought at least to have been double, with even tolerable pasturage, and where too many stocks are not congregated together, as seems not improbable with you. You do not say what kind of hives you make use of, nor what method of management you pursue. It is impossible to lay down any certain criterion of a "good season" everywhere in our uncertain climate and in varying localities. Mr. Payne says, speaking of his own experience, "it is usual to obtain from every good stock 20 lbs., or perhaps 30 lbs., of honey annually." On this Mr. Taylor observes, "This would be thought too high an estimate in many districts." On the other hand, still larger products are afforded in the vicinity of heaths and moors, where a second harvest of blossom is available to the industrious labourers. We may remind you that every stock intended to stand the winter ought to contain not less than 16 lbs. or 18 lbs. of honey, exclusive of other substances. Dr. Dunbar remarks, "A common straw-hive weighs when empty 5 lbs. or 6 lbs.; an ordinary swarm about 4 lbs.; the wax of a full hive of the current year nearly 2 lbs.; of the preceding year, perhaps 3 lbs.; and the farina in the cells not less than 1 lb.; making in all about 15 lbs. A stock, therefore, to be secure, ought to be double that weight in the gross—that is, should contain not less than 15 lbs. of honey."]

LIGURIAN BEES.

SOME time ago I called attention to a proposition made to English apiarians by H. C. Hermann, of Tamins-by-Chur, to introduce here the Ligurian race of bees, or *Apis Ligustica*. Your readers will have perceived that the hint has not been in vain, and that your correspondent, the "DEVONSHIRE BEE-KEEPER," has already recorded part of his experience as an importer of the Italians. A letter from M. Hermann, in reply to a friend, whose adventure in queen bees had been unsuccessful, now lies before me, which though it adds but little to our knowledge of these interesting little strangers, may serve to amuse, from its intrinsic novelty, if I offer a portion, much abbreviated, for insertion in your pages. It is dated from Sondrio, Lombardy.—T.

"Sir,—I duly received your favour. Sir, I never let me pay for what is not find well, so you will receive 5 Queens in the finest quality, of 3 and 4 months age of each. This makes £5 at £1, less discount 10 per cent. £4 10s. Being now cold in England you must put them on arrival in a room where is a temperature of 15—20 Reaumer for some ours. If you had done so the last, you would have done better. I will send you some exemplars of Drone bees. I have sold 300 Bee colonies to Germany at £1 2s. each. This bees will give much pleasure in the spring. Here are 2 bee-keepers, who has every one 1000 to 1500 bee-hives, from which they does kill every year the swarm, near 3000. I am here to buy these bees. In Germany there is now a very enthusiasms for obtaining Queens, and I cannot enough find. As the Italish people kills only the old hives, with young Queens, you consider those may be very good. The expence of carriage to you would be very inferiour, if the commission were great enough to give the Bees to the Rail-roads, *vid* Antwerps, or Ostende. I cannot francate this letter from here, as the new government has not yet his things in order.

"I remain, Sir, with big esteem, your obt. servant.

"H. C. HERMANN."

OUR LETTER BOX.

BRETTON (WEST) POULTRY SHOW.—You will greatly oblige me if you will correct the following mistake:—Game (Duckwing) Chickens.—Mr. John Crosland took first prize; Mr. Dodds second.—JOHN CROSLAND.

INCUBATOR.—Mr. W. W. Copland may obtain useful information from Mr. Robert Marr, 25, North Albion Street, Glasgow.

ERROR.—At p. 14, col. 1, line 40 from top, for "hedged" read "edged."

LONDON MARKETS.—OCTOBER 10.

POULTRY.

The unusually hot weather has made any quotation difficult, as much poultry is unfit for sale when it arrives, and more than half the game is in the same state.

Each—s. d.				Each—s. d.			
Large Fowls.....	3	6	to 4 0	Partridges.....	0	4	to 0 10
Smaller ditto.....	3	0	" 3 6	Grouse.....	2	3	" 2 9
Chickens.....	1	9	" 2 3	Pigeons.....	0	8	" 0 9
Geese.....	6	0	" 6 6	Hares.....	2	6	" 3 0
Ducks.....	2	6	" 2 9	Rabbits.....	1	4	" 1 5
Pheasants.....	3	0	" 3 6	Wild ditto.....	0	8	" 0 9

WEEKLY CALENDAR.

Day of M th	Day of Week.	OCTOBER 18—24, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
18	Tu	Nerine Sarniensis.	29.795—29.712	54—46	N.E.	.10	30 af 6	59 af 4	29 9	22	14 43	291
19	W	Othonna virginica.	29.616—29.552	56—51	N.E.	.14	32 6	57 4	54 10	24	14 54	292
20	Th	Oxalis ambigua.	29.694—29.629	59—37	N.E.	.00	34 6	56 4	morn.	24	15 4	293
21	F	Sun's declin. 10° 37' s.	29.891—29.820	60—42	E.	.00	35 6	54 4	23 0	25	15 14	294
22	S	Oxalis Bowlei.	30.268—29.974	61—35	N.E.	.00	37 6	52 4	49 1	26	15 24	295
23	SUN	18 SUNDAY AFTER TRINITY.	30.245—29.967	61—42	E.	.00	39 6	50 4	15 3	27	15 32	296
24	M	Oxalis hirta.	30.047—30.003	58—40	E.	.00	41 6	48 4	40 4	28	15 40	297

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 58.4° and 41.1°, respectively. The greatest heat, 73°, occurred on the 21st, in 1830; and the lowest cold, 20°, on the 21st, in 1842. During the period 115 days were fine, and on 109 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE decline of temperature and less watering must go on progressively, more especially in dull weather, with free ventilation at all favourable opportunities. If the weather be cold, use a little fire-heat occasionally during the day, especially where there are many plants in bloom, that ventilation may be given to expel damp and stagnant air.

CINERARIAS.—Plants that have filled their small pots with roots to be shifted, according to their size and strength, into larger pots. The compost to be one part turfy loam, one part peat or leaf mould, and one part rotten horsedung. They delight on a cool bottom, and will thrive tolerably well in a cold pit, protected from frost during the winter. They should be placed on a dry bottom of coal ashes, and kept as near to the glass as possible.

HEATHS.—They may, if there is no room for them in the greenhouse, be kept in a cold pit, or frame, during the winter. Water to be given carefully on the forenoon of a fine day. Frost to be excluded by mats, or other covering; but they can be grown sufficiently hardy by free exposure to bear a few degrees of frost without injury if they are shaded from the sun's rays until gradually thawed.

MIGNONETTE.—Sow, to come into bloom about the end of February. The soil to be rich, light, and the pots to have a good supply of crocks at the bottom, as the success of growing this favourite plant through the winter will depend in a great measure upon the drainage and keeping the plants dry and untouched by frosts. Those who have a hotbed frame will find it useful to start the seeds by moderate heat. Others who have no such convenience may place their pots in a cold frame in a sheltered situation, and upon a floor of rough stones overlaid with ashes.

PELARGONIUMS.—The more dormant they can be kept during the winter the better. Therefore, only a very moderate supply of water should be given to keep them from flagging, and a liberal supply of air at all favourable opportunities.

VERBENAS.—To be placed on swing or other shelves as near to the glass as possible. They require plenty of air, the extirpation of green fly, and a moderate supply of water to preserve them in a healthy condition.

STOVE AND ORCHID-HOUSE.

FERNS.—Sow the seeds, or spores, when ripe. A convenient sized pot to be filled with sandy peat, finishing with a few rough lumpy pieces to form an uneven surface. The seeds to be shaken over the tops and sides of these pieces of soil, by which there is more probability of some of them vegetating than if they had been sown on a level surface where the whole of the seed would be subjected to the same kind of treatment, which might with ordinary care be either too wet or too dry. The pot to be set in a saucer that contains a little water,

which will feed the whole mass with sufficient moisture without a drop being required on the surface of the pot. The seedlings succeed best in a cool part of the stove where evaporation can be most effectually prevented; but they do not like to be continually kept close under a bell-glass.

FORCING-HOUSES.

CUCUMBERS.—Top dress the plants in pots or boxes with leaf mould, supplying those that are rooting freely with an abundance of atmospheric moisture, and free circulation of air, stopping at every second joint, and setting the fruit as the blossom expands.

STRAWBERRIES.—It is usual, when the stock of plants in pots is large, to lay them on their sides on the south side of a wall or fence, packed in dry coal ashes, and topped with boards, or any other such covering, to protect them from heavy falls of rain until they are wanted for forcing.

WILLIAM KEANE.

WHAT TO LOOK FOR ON THE SEASHORE.

IN anticipation of that season of the year when certain favoured spots on the pleasant sea-coasts are crowded with those whose means, leisure, and inclination enable them to indulge in so welcome a respite from the ordinary occupations of life, it has been thought desirable to throw together a few plain, simple, and practical hints, which may enable such as are wise enough to seek information even in their enjoyments, and derive profit from their pleasure, to explore the world of wonders to be found in the sea and on the shore. Indeed, it would be hardly worth while to envy the conformation of any man's heart or brain who could take an hour's walk on the sandy beach with his feelings untouched, and his thoughts unoccupied, by the infinity of marvels lying at his feet—who would be content, in fact, to inhale the fresh sea-breeze with only the same passive satisfaction as the spaniel trotting at his side.

Still, to such as are unacquainted with the peculiarities and attributes of the objects around them, a guide is necessary to assist them in the search and discovery of numberless strange and beautiful specimens of Nature's handiwork, which appear to the casual and unobservant loungeer utterly insignificant and uninteresting, to be trodden on and passed by; or, at most, if a particularly singular object catch the eye, to be picked up, remarked as being "pretty," or "funny," and carelessly tossed away again without further thought or attention.

The pleasure which will certainly be derived, the astonishment which will as certainly be created in our proposed investigation of sea-side curiosities, will certainly repay us for any trifling inconvenience we may suffer from an occasional fall on slippery places, or an impromptu foot-bath without the preparatory removal of shoes or socks.

Who that gazes upon the far-stretching sea but wonders what may be hidden in those unfathomable depths? From the glimpses we catch through the clear green waters of the many-coloured plants waving their delicate branches and gay flowers to and fro, we may speculate safely on the richness and fertility of the gardens far, far down, compared to the plants of which these external specimens may be but as weeds (sea weeds, for the most part, indeed, they are popularly called). Who knows but that in those unimaginable depths there may be gardens rivalling in brilliancy and beauty those of the fabled Hesperides, or immeasurable tracts covered with a gigantic ocean forest, tenanted,

probably, by strange and terrible monsters, natives of those sunless regions? But these impenetrable recesses are destined to keep their own secrets, unless, indeed, this super-scientific age should produce some gentleman ingenious enough to discover the means of exploring them: little else would be required, except to find some *other* gentleman bold enough to undertake the voyage of discovery. For the present we must be content to remain dwellers on the threshold, to pick up a few shells from the shore, to pluck a few flowers from the sea-margin, and by them to form some judgment on the riches of the interior. And even in this comparatively limited sphere of action we shall find enough, and more than enough, to engage our attention, and to satisfy our curiosity for as many sea-side excursions as are likely to fall to the share of the youngest of us at present engaged therein.

The common Wrack or sea weed, covered with the mist-like "sand-skipper" (of which tiny specimen of sea-animation we shall give a detailed account hereafter), those wonderfully-organised animal-flowers, the "Sea Anemones," the strange blending of animal, vegetable, and mineral life—for there are stony plants, aye, and stony animals, too, with a thousand other fantastic and inconceivable phenomena, which will form an almost inexhaustible source of wonder and delight, and of what is far better—sound and interesting information.

All technicalities will be, as far as practicable, scrupulously avoided, these unpretending chapters not being intended for those experienced in the subject under treatment, nor do they profess or pretend to add, in any way, to the stock of knowledge laid up by the labours and researches of others. Their sole aim is to afford such assistance, and to impart such information as may be serviceable to those who are desirous of forming a more familiar acquaintance with the structure, habits, instincts, and peculiarities of the apparently insignificant, but in reality most important and wonderful objects to be found on the seashore—to lay open, in short, to the uninitiated another page of the mysterious volume of creation.

Nor let the reader apprehend that the page is either a dry or a tedious one. At every step will start up some strange and fantastic novelty to repay his progress, and to entice him onwards. Surprise and delight will attend his every movement, and the result of his inquiries will furnish him with the means of lightening many an after hour, by recalling the pleasant labours of his summer rambles; more especially if he will be at the pains of collecting specimens of such plants and animals as he may meet with, an easy and economical method of doing which will be hereafter suggested.

Nor are the fairer portion of the seaside-visitors by any means excluded from this interesting pursuit; on the contrary, from the fragile organisation of many of the little creatures we are about to describe, the delicate touch of a lady's hand would be more desirable for their safe examination than the rougher manipulation of her attendant cavalier. Therefore, a sister can accompany her brother, or, when practicable and permissible ("Ask mamma," being always understood), the one "nearer and dearer;" and so, hand-in-hand, unravel the mysteries of theseaside of Nature.

Accuracy of description, and adoption of the simplest terms to convey the necessary information, will be especially attended to. The alarming classical names, both of animals and plants, which are enough to scare the unscientific reader from the page (as may be readily conceived when the common Whelk is called *Buccinum undatum*, and the commonest species of sea weed *Fucus vesiculosus*) will be banished from the body of the work, although, for the benefit of such as may be curious to know them, they will be given in parentheses.

It is proposed to commence with the lowest order of objects remarked on the seashore,—namely, starting from the earliest appearance of animal life, to advance upwards, by a regular gradation, from its lowest to its highest form within the scope of our work, which is not intended to embrace any creatures that are not ordinarily seen in the elegant aquaria now ornamenting so many of our drawing-rooms, and whose miniature ocean with its occupants is a never-failing, never-tiring source of entertainment and instruction.—W.

(To be continued.)

OUT-DOOR GRAPES.

At the last meeting of the British Pomological Society it was resolved not to send a deputation to see if there were a "trick" in my way of growing Black Grapes out

of doors. Whether that resolve was in consideration of my larder and cellar, or, rather, that I might offer a deputation to dine off a *gammon* of bacon, in place of a baron of beef or saddle of mutton, I know not. But they sent down a plenipotentiary—a man with full powers to turn over every leaf in my book—and a man, too, who could not, and would not, dine upon a gammon or drink the juice of the unripe berry.

When the best friend I ever had among the florists told me to my face that "he did not believe one word" of that about growing such Grapes, as I exhibited at Willis's Rooms, out of doors, I little expected his doubts would ever have come to such a pitch as I am brought to this day, to be under the practical necessity of declaring myself wholly beaten in my strongest tower. I once entertained the proud idea that no man on earth could ever beat me in growing Grapes out of doors in this climate, but a sailor of more fortune than common has done the thing. Captain Hopkins, of Surbiton Hill, who was under canvas for nine-and-thirty years in the East India and China trade, and who has seen the Grape under many aspects and aspirations, is the man for the Marquis's gardener, who, if he would not believe me, or my own *Black Esperione* Grapes, could hardly be supposed to believe his own eyes if he were to see Captain Hopkins's *Black Hamburgh* Grapes on his walls on Surbiton Hill quite as forward and much finer than my *Esperiones* under the Hill and at Willis's Rooms.

After settling all that related to the inquiries of the British Pomological Society in my garden, it was a question whether I would let their commissioner into the secret of my sorrow at being only the second best Grape grower in Surbiton, and thus add to the pleasure of the author of the *Bowood Muscat*, who might get out of his fix by saying he had heard of Captain Hopkins's success, and did not believe one word of it anent my Grapes. Besides the duty of fair play in a public writer, the thing is sure not to end here; and if I did not take the liberty of introducing the inquirer after the truth into the presence of Grapes superior to my own with my next-door neighbour, I ought to give up my claims to a Scottish clanship.

The selfsame Grape, for which I received seven distinct and different names at Willis's Rooms, turns out to be the *Esperione* of Langley; the commissioner was not five minutes before he decided the point—not, as far as I could see, by a comparison of points so much as by his own intuitive perception. Envoy extraordinary would suit his name, if not his mission. The moment he saw Captain Hopkins's Grapes, "but these are *Hamburghs*," was his first remark. They were *Hamburghs*, sure enough, so much more complete is my defeat. They are from cuttings taken from the large celebrated Hampton Court Vine by the Captain's father, who, if he had not told us he was in his eightieth year, we should have put him down at about sixty, and a mere youth in his enthusiasm for gardening. He says the Captain has been so long accustomed to command, that he *will* now have his own way in the garden: and that way seems also, sure enough, to be to lower the sails of his rivals.

The history of the two kinds of Grapes for the last few years will show two things—first, that the air and climate of Surbiton are very good, very healthy, and excelled hardly on our south coast—for Grapes, at any rate; and in the second place, we ought to give it in such a way as to be instructive to those who would grow Grapes out of doors, and may be less fortunate in respect to climate; for, if I understood the plenipotentiary of the British Pomological Society, that body is going to take up the subject in earnest, and (diamond cut diamond) are to exhibit their Grapes before it at the Hanover Square Rooms on the 26th inst., and where I shall play second fiddle, if no one else be more fortunate to come in between me and Captain Hopkins.

Mr. Hoare had his vineyard and wrote his treatise at

house a few doors from Captain Hopkins's, and the Captain will explain his practice, and the state of his orders first to the British Pomological Society; and what remains for me to say on his part is that the Vine mildew visited his plants last year; for the first and last time at us hope. He took down all his Vines this last winter in spring, and twice painted the wall with a mixture of sulphur, lime, and soot, leaving it a soft grey colour; and his Vines took to their usual vigour, and no insect or mildew came near them since. He also thinned his hoots considerably, and trained the young ones on Hoare's system in such numbers as put him and them at the top of the tree the first season; and I attribute the main cause of his success to the ample surface of vigorous foliage thus obtained, to his keeping his rods at a good distance apart, and discarding all laterals as they appear.

Two days after our visit I sent a commissioner to report the state of the great mother Vine at Hampton Court, and the bunches were not quite so ripe there as from the cuttings of the same in Capt. Hopkins's garden on the open wall. Mr. Donald, of the flower gardens here, went round with my envoy, and kindly showed everything under his hands. The best flower-bed in the garden was then a bed with one half *Mangles' Variegated Geranium*, and one half variegated *Periwinkle*.

My *Esperiones* were much the same as those I showed in Willis's Rooms. Last year they were better, but this season they were back to the old tune through my own doings. The Vine divides into two equal parts to pass up each side of a window. A large branch from one side I took in through the place of a pane of glass to my minimum conservatory, and the Grapes inside were in bloom ere the buds of the outside part had much advanced, and the consequence was, that the flow of sap went readier in under the glass, owing to the more strength inside, and by Midsummer day those outside were three weeks behind their average work; but as I never stop a shoot, before a bunch, out of doors, as long as there is room for it, up to ten or fifteen joints, nor allow a lateral to expand a leaf at all, merely leaving one joint leafless for fear of accident to the shoots; when the greater surface of leaves outside came to their working age, they, in their turn, drew more of the sap their own way, and the inside Grapes suffered till the shoots outside were stopped, and the balance of flow was thus restored. The Grapes inside were early and delicious but not better looking than common ones.

No trick or puzzle could be detected from first to last. The ground had no manure for the last forty years. The immediate border is a concreted open yard, except the corner where the Vine is planted, and the yearly supply of coals is put there, in June, in each year; but a draining-pipe six inches in diameter saves the stem from the pressure of the coals, and to pour in such quantities of good soakage as an old gardener like me delights to see his Vines enjoy.

The secret of growing good Grapes out of doors is not to allow one leaf to shade another; to allow fruit only on the young wood of last year; to stop all the laterals at the first joint, and to pick off the leaf from the joint as soon as one can get hold of it; also, to have every shoot stopped right for the season by the first week in August, and, from the end of May to the beginning of September, to keep the roots in one continual soak of rich liquid manure. Strong soap suds being, apparently, the very best for the Grape Vine, that, and the house pails, and a weekly sweeping from the necks of chimnies in a large tub of soft water, are all my Vines receive or require; and although I have been most completely beaten in my favourite branch of the craft by Capt. Hopkins, I hold it a sound doctrine not to dose or doctor outside-Vines with any thing less lasting than crushed bones; but to depend on hand-feeding while, and for the short while, each season, that the appetite is on at the roots, and over the broad surface of luxuriant foliage.

Capt. Hopkins has adopted a better system than mine this season. He has separate Vines for his greenhouse, instead of halving it as I did, and as I shall not do again. He trains his Vines under glass on Hoare's system, and his Grapes prove how well the system answers. But he has dipped into the plan much more boldly than I have. He has a large Vine of the *Black Frontignac*, from Constantia, where the celebrated Constantia wine is made at the Cape of Good Hope. The vineyards there were his half-way, and his house of call to, or from, India; and some parts of his success may be attributed to what he may have seen at these foreign vineyards. His Constantia Grape has a large crop of fine fruit which will ripen this season, and most seasons. His garden is a perfect model of high keeping, his Roses in particular; all his beds and borders are edged with Hogg's edging tiles, which drain the walks, and keep everything in its place. They have been down some years, and not one of them has ever yet suffered from frost or harm of any kind. His Ivy wall is a model of our highest art, and his specimen Geraniums are, some of them, over twelve years of age, just like those I mentioned from Fulham Palace.

A *Passiflora racemosa*, the common blue Passion-Flower, facing the Vines, has the finest stem I ever saw. It is a clean, clear, shining stem seven feet high, and as smooth and straight as a gun barrel, and many inches round. From this a host of running shoots rise to a great height, and then fall down gracefully over themselves, as at the colonnade at the Crystal Palace. It is one whole sheet of bloom all the season, and now hangs in fruit and blossom.

To show one instance, out of many, of how the love of gardening increases with our years—our guide, the Captain's father, now in his eightieth year, inquired of us diligently if we thought the seeds would ripen, as he longed to have young Passion-flowers of his own rearing.

The propagating-house is his own invention, and is on the principle of the Waltonian Case. It is placed at one end of the greenhouse, ranging with the front glass, and behind it are the potting-shed, tool-house, and laboratory. A separate fire in the potting-shed heats a coil of gas pipes, one leg being the flow, and one the return, from a large tank made of zinc, with raised edges all round, the edges are open as the tank to hold water, and tan, or sand, or sawdust may be used to plunge cutting-pots in.

Mr. Hopkins says Verbenas do better from autumn cuttings, full in the open air, than by all the other methods put together; and he showed us specimens which he ordered to be put in, after the stock was struck off, in order to convince a young idea, who, like my worthy friend, "would not believe one word" about Verbenas striking out of doors; but there they were, and the Pomological people will have, or may have, the benefit of the young aspirant's doubts.

But Captain Hornby himself ought to have been there to see the happy family of Captain Hopkins, his dogs, his pigeons, and his breeds of fowls eating out of the same dish. I had seen the first of the Cochin-China breed at the Messrs. Sturgeon's, at shows and sales in all their varieties and moods; but I never saw any to equal Captain Hopkins's, or which come near them; but then consider the exactness, and the cleanliness on board a man-of-war, or an East Indiaman, and nothing ever afloat could exceed those rules for cleanliness and for prompt action, by which this family of feather is made so happy, so healthy, and so well paying as they really are and have been for years past.

I did not ask this sight for the high commissioner from the Pomological, as he was desirous to visit the Experimental Garden, where we found the family from home, then down at the seaside; but everything was as clean and as much in its place as if they were at home, except the conservatory and the mansion. The pot and tub-plants of the former were out airing, and all the furniture in-doors was topsy-turvy, preparatory to that

bustle which one hears along the corridors when "the Queen is coming," and all hearts are at the highest beat.

When Mr. Arnott, of the firm of Milne, Arnott, & Co., came down in the spring about the exchange of Camellias, the Queen was home, and he had the luck of seeing the best looks from the drawing-room windows; but now we could not get through the front-hall if it were ever so. The commissioner is a connoisseur in pictures, and having seen some in the dining-room, he scrambled over some heaps and got in there, and was likely to remain there for the night. He was much struck with the Experimental, and he made many observations, but they were more complimentary than instructive, so I shall pass on to the framing-ground, where we found them hard at potting the bedding plants, the family being not expected home till the Chrysanthemums are out, or in, rather.

The *Golden Chain* were the first plants potted from a whole row in the ribbon-border. Very light and very rich compost they had, all the big leaves were cleanly cut off, and the pots set on coal ashes under a wall. They never put any plants from the beds under glass when they can pot them thus early; and all the autumn cuttings they also set out on ashes as soon as they are fairly rooted. All the variegated plants came in lots after the *Golden Chain*; and the *Variegated Ivy-leaves* stood next the latter in the order of potting. The first green leaves were the *Harkaways*, then the *Harry Hieovers*, a seedling from *Harkaway*, named, by command, after the author of "Table Talk" and "Stable Talk," with whom *Harkaway* was a favourite horse. But, most fortunately, this wet autumn has proved *Harry Hieover* not to be a sound colt for the turf. It will, therefore, neither be sold nor given away, but the name is retained for the very first best of that breed, also by command, and there are eight hundred already to choose from. *Lord John Russell* was the next. This is a capital new and very dwarf plain-leaved scarlet which was sent to the Experimental by Mr. Kinghorn, of Richmond, or of East Sheen, next to it. The next in order was the true *Trentham Scarlet*, sent there by Mr. Fleming himself,—a very different thing from that by that name at Sydenham; and then *Baron Hugel* and the *Diadematus*: the rest were in the beds.

The new *Unique* seedlings which were sent there this season from a gentleman, the best crosser amongst us all, have done remarkably well, and they are great favourites, and the wonderful bedding *Begonia* has proved just what he said, "equal to *Tom Thumb* in hardiness and as free a bloomer." It is an orange scarlet and very dwarf. I should not wonder to see it in bloom along with Dahlias and Chrysanthemums next month. The new *Nosegays* are from a much more hardy breed than those from *Inquinans*. They are, therefore, the last to be potted. But talk about *Nosegays*, the Pomological commissioner was struck with their numbers and extent. The first thing he met with at Surbiton was loads of standards of them being taken out by one of the Messrs. Henderson's carters. Mr. Andrew Henderson, from the Wellington Road Nursery, was down a few days before and made a clean sweep out of my private garden. My "good gracious!" yellow *Polyanthus* struck him more than anything he had seen or heard of for a long time. The way it roots into the Cocoa stuff surprised him, but the method of propagating it by the score, the hundred, or the ten thousand, was before him, and both he and the commissioner owned that nothing of the sort was ever done so before to such purpose; but my whole stock of it is gone, just as I began to learn how to do it, which is the same way as I have described already. Mr. Henderson is the father of the Cyclamens alluded to the previous week, and he was more struck with my White Grapes than the Black ones, seeing such an enormous crop of *Nosegays* all over their border; but the Geraniums and the thorough thinning-out in time of the berries were the secret, the border never missed a heavy watering one single day of

this long hot summer—not intended for the Grapes, but for the valuable collection of *Nosegays*, stellates, and minimums.

D. BEATON.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(Continued from page 19.)

SCARLET RUNNER AND DWARF KIDNEY BEANS.

The first sowing of these on stiff land ought not to be earlier than the first week in May. French Beans may be a fortnight earlier, but there is seldom any advantage in sowing these before May. Plant the Runner Beans four inches apart, in shallow drills at least six feet apart, and have poles or stakes seven feet or more high. French Beans may be in drills two feet and a half apart, and three inches from each other in the row. Be careful in gathering the pods of dwarf Beans, as they are easily broken at the neck. The *Newington Wonder* is a good, useful, dwarf Bean, and the common *Scarlet Runner* is the best of its class. These plants like a dry, warm summer, and are most prolific in such seasons. In very cold, damp soils, and dull seasons, they do not answer. The ground ought to be well pulverised for them, and at the time of sowing keep a sharp look out for slugs. Radishes or early Spinach might be sown between the rows of *Scarlet Runners*; but remove them when no longer useful.

BROAD BEANS.

Hangdown Long Pod is the most prolific. Sow in drills three feet apart, and four inches from seed to seed, any time from November to May, as may be wanted, and remove the stalks when done bearing. Dig and manure the ground, and sow *Stone Turnip* about the beginning of August to stand the winter. Thin the Turnips to a foot apart, and if the autumn be fine they will produce a useful crop.

ONIONS.

Sow the *Brown Spanish* and *Strasburgh*, mixed, or apart, if preferred, in rows a foot apart, the beginning of March, if the ground be dry enough to allow of being trampled on at that time, shallow drills drawn with the hoe, and the seed dropped in by hand, the ground afterwards raked. Hoe the ground betimes, and thin the crop to about three inches apart, except one row which may be left for picklers, and may stand very thick. On a very stiff soil, charcoal or wood ashes are the best manure for Onions. Lime may be added, but it is not so good, but plenty of good dung is also useful, and more especially if it is pretty deep in the ground. This being one of the most useful crops in the garden, and one which visitors are wont to look at, let it have the best place—often stirring the soil will be of great benefit to it, and do not neglect a timely thinning. When the bulbs feel loose in the ground, they are ready to be taken up; but let them lie a week or two to harden in the sun before housing them; after which keep them cool, but dry, and look at them betimes. The Onion plot ought to be deeply dug and manured as soon as they are taken off, to be ready for early Cabbage for the next year.

CARROTS AND PARSNIPS.

It is not prudent to sow many Carrots on a stiff soil, but a few of the *Early Horn* may be useful. Parsnips do better, and may be sown in March. The middle of April will be soon enough for Carrots. Parsnips ought to stand a foot apart, or nearly so, each way. *Horn Carrots* may be closer. Take up the Carrots in September, but let the Parsnips stand till February, as it is said the winter improves them.

BRUSSELS SPROUTS, SAVOYS, AND RED CABBAGE.

Sow these in a small bed as early in the spring as the state of the ground will allow, and plant them out in

rows two feet and a half apart by two feet in the row. Being all gross feeders, the ground cannot well be too rich for them. Earth them up when at the proper size, and they will require little more trouble. *Brussels Sprouts* are, perhaps, the most serviceable of all the winter Green tribe, as they may be always had from October till May. *Savoy*s are best after enduring a little frost. Cut *Red Cabbages* before they burst, or there is much waste. *Curled Kale*, and several kinds of *Borecole*, may be all treated the same as above; but *Brussels Sprouts* are the most useful and prolific of them all.

CAULIFLOWER AND LETTUCE.

If a few winter-preserved plants of Cauliflowers can be obtained from some one who has the means of keeping them, plant them on the early border in April, and sow a little seed in March and again in May, which plant out when ready. Lettuce of the *Hardy Hammersmith* kind may be sown the last week in August on some sheltered place to stand the winter, and being planted out will come into use in May. The *Brown Cos* and *Drumhead Cabbage* may be sown at various times up to the middle of June, and planted out in small quantities about a foot apart each way. Both Cauliflower and Lettuce like rich ground. The first crop of them will be off in time to prepare a piece of ground to sow with winter Onions the middle of August, and anything else that may be wanted then.

TURNIPS.

Sow the *Early Snowball* in April, and the *Early Stone* in May and June. Thin in time. The last crop might follow the Broad Beans as before stated. Like all the Brassica family, Turnips like good, rich ground.

RHUBARB.

Trench deeply and put in plenty of dung, and obtain from some nursery about eight plants of *Myatt's Victoria*, and the same number of *Linnean Rhubarb*, which plant a yard apart each way, and this will afford you and your neighbours stalks for tarts for all the season.

ASPARAGUS.

This is better adapted for light than stiff ground; but if a bed must be had, trench and put in plenty of mortar rubbish into the bottom, and dung at top. Sow the seed in the miscellaneous ground, and in moist weather in June. Plant them out in rows two feet apart, and one foot from plant to plant. Do not cut any until the heads appear strong, and then do not do it too severely, and the plants will strengthen. Salt and liquid manure improve Asparagus much.

LEEKs.

Sow a little seed if these are wanted, but be sure and thin them well if you do not plant them out, which they bear very well. The *London Flag* is the best kind. Sow early in March.

PARSLEY.

Sow this as an edging by the sides of the walks.

HERBS.

Lemon Thyme may also be planted as an edging the same as Parsley, but the *Common Thyme* is too robust, and with *Sage*, *Fennel*, *Mint*, *Hyssop*, and *Lavender*, might be planted on some odd place. *Summer Savory*, *Basil*, and *Sweet Marjorum* require sowing every season, but there are many families which never require these; though *Mint*, *Thyme*, and *Sage* ought to be grown by every one.

MISCELLANIES.

Besides the above there are other things which are occasionally wanted. *Vegetable Marrows* are very productive in hot, dry summers. A couple of plants raised in a flower-pot and planted out in May, will cover quite a rod of ground. *Ridge Cucumbers* are not so luxuriant,

but are also useful. Sown and reared the same as the Marrows, and planted out the middle of May, with some shelter from cold winds, they will often produce a great deal of fruit. The top of the compost-heap may be very well occupied with this crop in summer, and they do well on such a position. *Horseradish* is too difficult to get rid of again, to be grown in a small garden kept neat and orderly; but if wanted, crowns put in the ground in early spring furnish good sticks by the middle or end of summer, especially if the ground is good and deeply tilled. *Garlic* and *Shallots* are not likely to be wanted; but if so, plant the bulbs on fine, light ground in January.

FURTHER REMARKS ON THE GARDEN.

It is needless to say that all parts of it must be kept clean, not forgetting the hedge or boundary fence. Prune the Gooseberry and Currant trees in winter, and the Raspberry later on towards spring. Clear away the runners from the Strawberries as they are made, and put down straw, or something that way, to preserve the fruit from being dirtied. Dig up all vacant ground as it becomes vacant, whether in winter or summer, unless it be very wet at the time. Scatter lime or wood ashes over the seed-beds and small plants to keep the slugs away. Water with liquid manure such crops as Celery, all the Cabbage tribe, Asparagus, and such like; but do not commence watering Onions unless you can continue to do so. Support all tall crops—as Beans, Scarlet Runners, &c., from hanging on lower-growing ones. Allow no Lettuce to run to seed, unless you want to save some. Of course, the same remark holds good to Cauliflowers, Cabbages, &c., but keep only such kinds of Lettuce in seed-flower at a time, and the same of the Cabbage tribe, if you be saving seed of either. Dig the ground with a fork in winter, and use very little of the rake until the end of April.

INSTRUCTIONS FOR CROPPING A LIGHT SOIL.

The same crops will, in a great measure, thrive here as mentioned for the *stiff soil*. Carrots and Asparagus will do better; but all the Cabbage tribe will suffer more in a dry season, unless well supplied with liquid manure, which is the *all-important agent here*. Strawberries will not do well in the dry, hot part of summer, neither will Broad Beans and Peas; but crops will endure a hard winter better, and the ground is more pleasant to work. A dry soil in the west of England, where there is generally double the amount of rain there is on the east side of it, is an advantage; but in the dry eastern counties vegetables are very poor in the dry summer months on such soils, the stiffer soils being more productive there. These conditions ought not to be lost sight of by one superintending a garden, as no amount of human skill and energy can completely triumph over a natural difficulty, how much soever they may modify it, and systematic watering by hand ought to be avoided if possible.

J. ROBSON.

(To be continued.)

HINTS TO BEGINNERS—PROPAGATING.

"I HAVE put in Verbena cuttings according to the directions given, and more than half of them are gone, though I have filled up the pots repeatedly. In one place, rather airy, they dry off; and in another place, rather close, they damp off." "My variegated Geraniums, such as *Flower of the Day*, *Golden Chain*, &c., are more than half gone; the point damps, and away the whole rots and decays." "Calceolarias that you dismiss with almost a word are a great pest to me; even though I give them a little hotbed, they either wither and rot, or get covered with thrips and insects." "I put in nice cuttings of Heaths, as advised in an early volume, and they looked well for a week or two; but now they are as brown as a berry, though the sand is quite moist enough." "I have put in the dark double Groundsel time after time, but it shanks and rots off before or as soon as struck." "I have placed cuttings of soft-wooded stove plants under a bell-

glass in a sweet hotbed; and, though duly shaded and watered, the most of them have gone, though I left a fair portion of leaves on them," &c.

These are only a portion of the complaints that reach us, and about which advice and knowledge are requested. Talk about turning up the index of earlier volumes, and you get a look as much as to say, "Very nice indeed! Thank you for nothing! I wish you may get it. No, no: if you wish us to read *THE COTTAGE GARDENER* you must attend to our wants and wishes, or off we go elsewhere." Much that we hear and much that we see at times painfully remind us that, with all our attempts to simplify, we have not succeeded, as the want of knowledge and the want of practice of these simplicities are the chief causes of disappointment.

Using, then, our eyes as well as our ears, we would say that one cause of failure arises from not making the cuttings properly. We examined a lot the other day. Nice, stubby, young shoots, from two to three inches in length, had been torn from the older branch (not cut), and, with hardly a leaf removed, had been placed at once in cutting-pots and on a cutting-bed. Those in the pots were at no great distance from the glass; and though the surface soil was moist, the leaves were curled and shrivelled, telling how little good they might be expected to do—merely because the laps of the glass being rather open, and the sun's rays not carefully excluded, the great surface of foliage exhaled more moisture than could be absorbed either by the leaves or the stem of the cutting over all its length. Others made in the same careless way, and placed two feet or more from the glass, and kept moist, close, and shaded, were rotting off by scores, and this rotting seemed in most cases to commence at the base of the cutting where a thin film remained at the place where it had been torn from the parent stem. This film soon got saturated with water, decayed, carried the decay upwards, and rottenness ensued. In making a cutting, the base can never be left too clean; and, therefore, with the sharpest clean-cutting of knives, every film should be carefully removed, when the cuttings are thus taken from the parent stem, and as carefully cut through at a joint when the end is not thus kept. Many things with solid stems will root very well though not thus cut through at a joint, as they will root freer between the joints than at them: still, as a general rule, it is best to cut through at a joint, as the more solid part there prevents the too-free entrance of moisture. On this account, in the case of cuttings naturally succulent, it is as well to dry these nicely-cut ends of the cuttings for half a day or so before planting them, taking care, however, that the leaves left are not allowed to flag. When growing-cuttings are inserted, the foliage left should never be allowed to droop. On the principles spoken of the other week, from the one-half to one-third of the foliage on the cutting naturally will be enough to leave. That will be enough to maintain the processes of vital action, and so lessen the evaporating or perspiring surfaces as to lessen the danger of the cuttings exhausting themselves, when not kept close and shaded.

2nd. The materials used for the cuttings is another source of disappointment. Some who were in ecstasies at their rapid success in striking in saucers in sand and water, are now rather inclined to be fretful when they look on their saucers with little or nothing but the sand in them. Though approving of that method for striking in windows, especially in early spring, I stated more than a twelvemonth ago that the cuttings must remain in such receptacles no longer than they were struck, for the attempt to keep them there, with the assistance even of manure watering, would be much more troublesome and less successful than in pots in the usual way. Some of our friends have gone to the other extreme, and used soil so stiffish as to keep the base of the cuttings as if wrapped in a wet sponge, from which the moisture could not easily get away, and rottenness ensued. Others have taken the other extreme, and given the cuttings nothing but sand; and though the pots were well drained these cuttings had only that one advantage over those grown in undrained saucers. As seen in the saucers, and also in pots of sand, there can be no question as to rooting, but the sand and water alone will not long keep them in health. Whenever the cuttings are to stand any time in the cutting-pot, the pots should be filled for a third with drainage at least, then enough soil of the kinds desired, whether sandy loam or sandy peat, then finer loam, with a little very fine leaf mould and sand, and then half an inch of pure sand for a covering, for fine tender things, and at least a sprinkling, for the commonest things. Under such a system the moisture cannot stagnate and get sour about the base of the

cutting; and the surface sand, if at all moistish, will prevent the air entering and drying up the portion of the cutting inserted in the ground; whilst, as the roots are formed, they soon enter the lower stratum, and find a good healthy feeding-ground, in which they may remain for months, if necessary, in the winter time. In moving such plants no check is experienced similar to what they would receive if taken out of sand and water, unless great extra care is required.

3rd. A third cause of failure arises from careless shading. Where amateurs must be absent for several hours during the day, it will be safest for them to place their cuttings at two feet from the glass in September, to three feet in July. The sun's rays will thus be more diffused before reaching the cuttings, and shading will be minimised. As soon as the rays of light strike powerfully on a cutting, not to speak of the rapid decomposition, too, of the carbonic acid the cutting contained, we know that the cutting will flag, because its leaves will evaporate moisture faster than they can get it. This leads us to put a screen between the cutting and the sun, and we may sprinkle the cuttings or the walls of the place in which they are placed, and take away most, if not all, the air, in order that the cuttings, being placed in a close, moist atmosphere, may be forced to absorb as much, or more, than they perspire. Carry on this process too far, in other words keep shaded longer than it is necessary, and you cram the cuttings with moisture, and make them as rickety and sickly as a child would soon be who was well fed and confined to one small, darkened, unventilated room. Free solid additions are made to cuttings and plants under the influence of light. The cutting must have no more sun light at first than it can stand; but every bit of shade it receives in cloudy days, morning and evening, more than it absolutely wants, is just so far a weakening of the cutting—an encouraging of the top to draw up spindly and a discouraging of the base to send out healthy roots. How often do we see a mat or a cloth thrown over cuttings in the sunny forenoon, remaining after the sun was either cloudy or struck so obliquely on the place, that the rays would have done good instead of harm. Many such coverings for want of thought will remain all the evening and all the night, and save shading for the next day; and when this is persevered in, people wonder that the cuttings, if they live, show more vitality in wire-drawing their little stems upwards than in forming roots downwards. At all times, but especially in autumn, do not shade at all, if a slight sprinkle from the syringe, and a close atmosphere would prevent the leaves flagging. Of course, when there are several hours' bright sunshine and the cuttings are new, shading in addition for a short time will be necessary.

4th. A fourth cause of disappointment is using hotbeds for hardy things in autumn. Even in spring it answers best where rapid growth has previously been induced. In autumn little is gained by any such hurry. Give the cuttings time and they will amply repay you by doing their work well. The great thing is, just to place the cutting as much as possible in the circumstances in which it was placed before leaving its parent stem, as respects heat and other stimulants. Take a branch from a growing plant in the open air, the greenhouse, or the plant-stove, and place each in a pot in these places respectively, letting them take the same chance as an established plant, and we should expect sudden death, because the evaporation would so greatly exceed the absorption. Hence the importance of a shading and a close atmosphere during the heat of the day, to save cuttings from exhausting themselves. Extra heat, however, to any great extent only encourages the cutting to draw itself out without adding fresh material; and if you do succeed in rooting, you must also again have extra care and trouble in hardening the plant and making it thus fit to contend with the circumstances in which it will be eventually placed. An exception may rightly be made in the case of comparatively hardy but slow-rooting plants. These should be treated in the mode alluded to, until the base of the cuttings begins to swell, or callus, and then the pots may be plunged in a sweet bottom heat, whilst, by means of air, the tops are kept as cool as possible. Roots will thus be encouraged, and the tops will not be drawn weak or rendered enfeebled.

A fifth and chief cause of failure, as fostering damping, decay, &c., is the coddling system of keeping cuttings shut up always in a close atmosphere. Where much propagating has to be done the ability to look at this in a common sense view is worth more than the price of any ten volumes of this work. A close atmosphere until the cuttings root, has been, until of late a rather general practice. That more rotting, and damping, and fogging did not take place in a poisonous atmosphere was owing

more to random routine and accident, than anything like design in the superintendent. It is generally agreed that plants inhale oxygen at night and exhale carbonic acid gas, and that the process is inverted in bright light and sunshine; the carbonic acid being then decomposed, and oxygen liberated whilst the carbon is assimilated. It was on this principle that some contended that if plants were exposed to light, although shut up close under glass, they would purify and oxygenate their own atmosphere. Facts, however, stranger than theory, demonstrate the importance of change of air for growing plants. It is equally, if not more, important in the case of cuttings. Put the cuttings almost hermetically sealed under a bell-glass, and carbonic acid gas will be evolved at night. Keep thickly shaded during the day, and that gas will be as likely to be evolved as decomposed until twenty-four hours. Being several times repeated, the cuttings will be in a carbonic acid atmosphere, and little or no oxygen present to stimulate the vital energies to activity. Shut up a boy in an elegant glass receiver, with plenty of eatables, and admit no fresh air, and how long would he live? Cuttings are too often treated in this manner. Now the great remedy is to give them air at night, less or more in proportion to circumstances, but still enough to let the foul air out and the fresh oxygenated air in. It cannot be given to any extent on sunny days for the reasons already given. On mornings and evenings a little may be given at times; but at night there is nothing to prevent it being given, unless when the weather is very windy; but even then a small opening will change the atmosphere, and not injure the cuttings. As a general rule, things in pits and hotbeds, under hand-lights and bell-glasses, should have these tilted a little in the evening, and remain so until the sun begins to strike on the glass in the morning. In the case of hardier things in pits and frames give an inch or so of air at the top of the lights in the evening, and shut up close before the sun strikes on them in the morning. In mild quiet nights double or treble the space for air, and raise the sashes instead of slipping them down, and place wedges in front of the lights also, that there may be a free circulation all over. In dull, cloudy days let the air remain on. If there is no brisk drying wind, and no sunshine, there will be little danger of flagging. Keep in mind that all shading and all keeping a close atmosphere, farther than is requisite to keep the leaves on the cutting from flagging, are injurious to the robust health of the cutting, and delay rather than expedite the rooting processes.

R. FISH.

TENANT NURSERYMAN'S RIGHT TO BOX EDGING.

A nurseryman who has rented a piece of land (which was formerly a stone pit) for the last twenty years, is now selling off his stock, and a dispute has arisen about the removing of the Box-edging which he planted to form the walks. He will be obliged if you will inform him whether the Box-edging belongs to himself or the landlord.—A SUBSCRIBER.

[If the nurseryman did sell, or would have sold, the Box-edging to a customer during his tenancy, we think the law would justify him in taking it away, as then it was part of his stock-in-trade. In the case of *Empson v. Soden*, it was expressly said that a tenant, *not a gardener by trade*, cannot remove a Box-edging unless by special agreement with his landlord (4 Barnwell and Adolphus, 655). By inference, therefore, if he were a gardener by trade, he might remove the Box-edging. We are quite sure rather than have any litigation or dispute, the landlord had better pay, and the nurseryman-tenant had better accept, a small sum for the Box.]

SIMPLICITY OF GOOD MUSHROOM CULTURE.

OF all the dainty vegetables with which a good gardener furnishes the kitchen, high up stands the Mushroom. Such is the constant demand for this dainty from November to May, that it generally causes no little anxiety beforehand with many gardeners for fear there should be any mistake in proceedings; for it is possible for the very best of cultivators to fail, although such is seldom the case. Where there is much winter cooking carried out, of course the head cook is a somewhat important personage; and if a failure in Mushrooms should by chance occur in early winter, these people are fearful to meet—better, as Solomon says, “meet a bear robbed of its whelps.” And no marvel either,

when we take into consideration the various forms it may be made to assume in cookery, even in its full character; to say nothing of the spice of flavouring it is capable of imparting when in judicious hands. Let but a gardener have constantly plenty of Mushrooms, Sea-kale, and forced Asparagus—all good—through the winter and spring, and he will pass muster, although, perhaps, no genius. Now much has been written about Mushroom-rooms. Still I believe that a paper or two annually will do good to some, although it simply warms up and freshens the first principles of culture.

Instead, however, of following the beaten track of detail, I will endeavour to discuss a few main principles on which their culture depends. I think that we may just raise questions as follows:—Character of dung: should it be fermented? What about moisture? Does it need admixture? Should the bed be loose? What about spawning, and also soiling? These are the points I will attempt to ventilate. I do really think that there is one class of minds—and I am not sure they are in a great minority—that would sooner fall in with good practice by such analysis than by a complication of mere dry rules, which are frequently conventional, and can never carry that powerful conviction to the mind that real principles truthfully handled can do. However, all this depends on the previous cultivation the mind has received, and, by consequence its real weight and position. I will take the points consecutively.

CHARACTER OF DUNG.—Nothing can exceed good horse-dung for Mushroom-beds, although they may be produced from other manures, and even from simple vegetable matters. The dung should be from horses well fed, and obtained, if possible, before a drop of rain has fallen upon it. The longest of the litter may be rejected; and the material when shaken out should contain a good deal of droppings.

SHOULD IT BE FERMENTED?—There has been, and still continues, much misconception on this point. I will not go so far as to assert that fermentation is never requisite; but this I know, that if the dung is quite fresh, as it ought to be, and never receives rain, that a week or two of drying under some shed are all that is needed. Now the dung must not be wet when made into a bed, neither may it be dry—it should be slightly moist. I believe that the only moisture that requires to be evaporated is the urine. This in the main dissipated, the spawn will at once revel in the manure. It seems odd that no writer or practitioner hitherto has touched on this topic: the fact is, it is left in an indefinite shape, and has been staved aside by the one general idea of fermentation. I should much like to know what some of our first practical men, rich in experience, have to say on this matter. The fact is, the urine is either a foe to the Mushroom, or it is not. I presume the former, but dare not insist on it. A few facts with which most of us have been familiar since our laddish days seem to favour the impression. I have seen Mushrooms springing freely from the floor of a deserted stable where the droppings had fallen, but not until the lapse of many weeks; during which period, I apprehend, that, as the urine of the horses evaporated, the rest in proportion generated spawn, and finally produced Mushrooms. I have also repeatedly seen in the stable of a neglectful carter, who, instead of removing the droppings daily, economised them by sweeping them into a sly corner of the stable—I have seen excellent Mushrooms springing from such a heap; but let it be remembered it was always about July or August. Now we all know that there is something almost mysterious about the production of Mushrooms, albeit we gardeners can make sure of a crop in general; and indeed there is as much room for inquiry and a free interchange of opinion in this matter as in any one thing in the world of gardening. The ordinary impression is and has been that the air during summer is charged with the spores (or shall we say seeds?) of this singular vegetable, and that when it alights on any body congenial to the production of spawn, it succeeds, all other conditions being equal.

MOISTURE OF DUNG.—The remarks requisite on this head having been involved in the preceding, little remains to be said. Dry dung will not succeed, and very moist is unfavourable to the working of the spawn; so, then, it must be in a medium state. We all know that, to have a Mushroom summer out of doors, we must have much dry and warm weather in May and June—the period when the spawn is spreading, which, indeed, constitutes a period altogether distinct from the production of Mushrooms. But when the spawn has established itself, mainly in dryish conditions, then the country people long for a warm shower or two at the end of August to bring out the Mushrooms: the spawn-breeding period therefore requires rather dry conditions; the

Mushroom-producing period slightly the reverse. Fogs at night and heavy dews are noted in the early part of September for bringing the Mushrooms out in the fields. In all these cases and conditions we must never cease to imitate such; and this has led me in the present case to talk of principles rather than rules.

MIXTURES.—In former days, the old Mushroom growers about London who produced for the market used nothing but dung—no soil; but then their beds were those out-door ridges which were in the main an autumn and early winter affair. No sooner, however, did Oldaker show forth a Mushroom-house than Mushroom growing underwent a kind of revolution. People began to see that it was neither a matter of position, nor shape nor make in the beds; and that they might be grown readily in a garden pot or box, or, indeed, any vessel. But it was also discovered that the shelf affair, only permitting dung about seven inches in depth, was but a matter as to durability. This led people to mix loam or soil with their manure. Indeed, this is the way in which spawn is made; and I have always found that the more fibrous loam could be mixed with the dung the longer such spawn would preserve its vitality. Now, it is evident that the nearer a Mushroom-bed approaches a good spawn brick in consistence and solidity the better. And here I may observe that there is a trickery in spawn as in other things. It is the fashion now-a-days to use nearly all flaky dung: and why? Because it dries quicker, is sooner in the market, and gives less trouble. But there is no comparison between this chaffy spawn and that made by a due admixture of loam or other soily material. The quickly-made spawn of dung will not endure the least steam in the dung of the bed: it will sometimes rot in three days, and this I think because dung is so rapidly absorbent as compared with sturdy loams.

SHOULD THE BED BE LOOSE?—I have already pointed to the necessity for firmness in the beds; they cannot, indeed, be too firmly beaten. I therefore pass on to

SPAWNING.—This, too, is half discussed in the foregoing, but a few words are necessary. The greatest danger to be apprehended, admitting that the beds are right as to dung, &c., is from overheating. As soon as a bed is made, the holes for the spawn should be opened immediately. This prevents in some degree that co-operation of the fermenting particles which is apt to produce overheating. In all cases, when beds are made of fermenting materials, the heat will rise gradually to what we may call a culminating point; and that, once attained, as gradual a descent takes place. This highest point should never exceed 80° if possible; and when it has descended fairly to 65° or 70°, then, and not till then, may the spawn be introduced with safety. Under such circumstances good spawn in good dung will begin to spread in a week or so. If it does not spread quickly it is not quite in earnest; and the best way is, with a slight amount of jealousy, to open new holes and spawn the bed again. As for soiling, it is not so very material a point: two inches of good loam slightly adhesive are the best practice. If, however, any amateur cannot obtain the gardener's fancy loam, let him not despair, but use some good fat garden soil; never mind what peculiar tint it is, only let the soil be pressed or beaten firmly.

I may now indulge in a few remarks of a miscellaneous character bearing on the Mushroom in some shape. First, as to watering beds if very dry. It is no uncommon practice to sprinkle dung slightly before it is made into beds; but in this case the dung should lay in a body for a day or two previous to building the bed. I would never sprinkle it while building if possible. I have generally found it good practice to sprinkle the beds slightly with lukewarm water after they have been made about a month or five weeks; in fact just before the Mushrooms are expected through. The soil generally becomes slightly husky, and a little water greatly facilitates the production of the Mushroom. But this is meant simply to moisten the soil: for bed or dung-moisture we must ever depend on the character of the dung at the time of making the bed. Sometimes it has happened that the dung has got too wet with rains: this is awkward. I have tried in this case a strong fomentation, but it seldom succeeds well as a drier of the dung; for by the time the water is dissipated by heat, the manure is so decomposed as to be more fit to dig in for Celery than for Mushrooms. I have tried wrapping the lumps of spawn in dry strawey material in such cases, in order to protect it against excessive moisture; but here I have been astonished, years since, at finding the spawn as entire after a couple of months as when introduced, but yet unable to break through the strawey prison which becomes encrusted.

ATMOSPHERIC CONDITIONS in Mushroom-sheds or houses.—

These are deserving particular notice. It is a well-known fact that Mushrooms will not endure very high temperatures in-doors, and, certainly, not aridity of air. I think 60° should ever be the maximum point; but anywhere between 50° and 60° is congenial to them. The air should be kept continually moist by water application while firing is used: in other cases more moderation may be used. Well, then, as to air-giving. It surely needs little argument to prove that they do not like a corrupt air, when we consider how boldly they spring forth at the end of August in our fields, where they have the comfort of a puff of wind occasionally: so that we may rely on it, they love fresh and sweet air. Indeed, it is this that completes their flavour. I am well assured that, however delicate and nice our artificially-grown Mushrooms may be, they will never make such rich catsup as those from the open fields. Those who grow them on the old-fashioned ridge beds, out of doors—a plan well adapted to produce up to the beginning of winter, should beware of the strawey covering. When the weather becomes severe in November, people are induced to lay on an extra covering, and this is apt to ferment. In so doing the surface of the bed will generally be clothed with a profusion of spawn instead of Mushrooms, and this rapidly lays hold of the strawey covering. I have known many a good bed spoiled in this way. The only cure for this matter is to place clean, dry straw next in contact with the bed: over that what you please.

R. ERRINGTON.

PASSION-FLOWER FOR A CONSERVATORY.

I OBSERVE in your columns of this week (October 4th), a question as to the best Passion-Flower for a conservatory. If I may be permitted to give a practical opinion, I should recommend *Imperatrice Eugenie*.

It flowers profusely, the flowers being sweet-scented, and of a delicate purple lilac, and very large. Its habit is luxuriant, and the foliage very decided and large, somewhat like *Buonaparte*. My gardener thinks it the best Passion-Flower out.—C. M. MAJOR.

CIRCULAR BED OF ROSES.

I WISH to have a circular bed of Roses of *Gloire de Rosamene*. Can I have a white and pink to mix with it of the same habit? I wish them on their own roots. There is an old-fashioned Rose (pink) called *The Four Seasons*: would this do for a pink?—KATE.

[There is not another kind of Rose, of any colour that we know, which has so much of the same habit as to associate with *Gloire de Rosamene* in a mixture of plant for plant in a Rose-bed in the flower garden. We understand perfectly well what you are aiming at; but then you have a lady's eye which all the Rose-growers could not satisfy in the way you propose. *Mrs. Bosanquet* is the nearest kind of Rose for what you want; an old, or three-year-old, plant of *Mrs. Bosanquet*, mixed with one-year-old *Gloire de Rosamene*, will be the nearest arrangement to that you wish. But the old-fashioned *Four Seasons* Rose will not do with any one of the Chinas, or hardly with a Bourbon; and it is not a pink Rose, nor a good Perpetual. It would have made a good bed when we first saw it in a mass five-and-thirty years ago; and yet it ought now, for the "fashions" then were just the very same as they are at this season, the only difference being that servant maids could not then afford to buy so much finery; and those who would bed *The Four Seasons* Rose now would be as much out of fashion by choice as their maids were then from compulsion.

Those long white maggots you mentioned are terribly destructive, and the simplest way to get at them is to stir the surface of the ground near to where they ravaged the night before, which will soon reveal the hidden mischief. We have thus killed hundreds this season of another destructive grub, which has the same habits.

Another Rose-bed that would just please your eye, and others like it could be made thus:—A circle, or "lover's knot" shaped bed, to be three feet higher in the centre than at the sides. The outside to be level, and three feet across; then a rise of eighteen inches, like a step in a staircase—say the first step. The top of this first step to be a bed eighteen inches wide; then another step of from fifteen to eighteen inches, and a top of not less than two feet across. The top and first step to be of two kinds of light Roses—say *Devoniensis* at top and the *Malmaison* Rose on

the first step on the bottom; *Gloire de Rosamene* trained down—that is to say, provided the *Rosamene* does well in your soil; if not, it is the most teasing of all Roses—it will neither do, nor not do, and when one thinks it is just going to do, it is sure to do quite the contrary.]

THE FRUITS AND FRUIT TREES OF GREAT BRITAIN.

No. XXV.—NOUVEAU POITEAU PEAR.

THIS remarkably fine Pear is one of the seedlings of Dr. Van Mons, and was named in honour of M. Poiteau, of Paris. It is a large and handsome fruit, and, when well ripened, is little inferior to the Brown Beurré, which it considerably resembles in flavour.



The fruit is large, and varies in shape from obtuse-obovate to pyramidal, and frequently it is pyriform; even in its outline, and regularly formed.

Skin, at first, of a deep green colour, which changes as the fruit ripens to greenish-yellow, or even a clear lemon yellow. It is considerably mottled and streaked with pale brown russet, and on the shaded side frequently covered entirely with a coating of the same.

Eye frequently closed, with long, fleshy segments, which are sometimes deciduous, and placed in a slight depression, which is bossed round the margin.

Stalk from an inch to an inch and a quarter long, stout, woody, and fleshy at the base, inserted obliquely in a very small cavity.

Flesh fine-grained, buttery, melting, and very juicy. Juice rich, sugary, and deliciously perfumed.

This exquisite Pear ripens in the middle or end of November, and very soon passes. Its maturity must, therefore, be closely watched; for, although it does not become dry and mealy, you may unexpectedly find the whole fallen down into a saccharine pap.

STRIKING CUTTINGS IN SAND AND WATER.

A LADY SUBSCRIBER wishes to know Mr Kidd's easy way of striking bedding plants.

[That way is for *Verbena* cuttings in the spring. The cuttings are made in the usual way, and are then put into pot-saucers full of water, and kept full till the cuttings are struck and ready to pot off, when a sufficient number of roots are about an inch in length. In a limited way, old-fashioned small China tea-cups or saucers would do just as well; and the window of a kitchen or drawing-room as well, or nearly as well, as a hothed. We would suggest for a cup, and even for a saucer, that as much clean sand should be put into the bottom as would leave only an inch of clear water on the top. Even now we would suggest that *Verbena* cuttings and cuttings of *Calceolaria* might be tried out of doors; but in the shade, seeing what Mr. Beaton reports to-day about *Verbena* cuttings in another page, we cannot conceive any more difficulty with such cuttings rooted in water than from such as are rooted in the usual way. The plan seems more handy for lady-gardeners, and they can the more easily judge when the cuttings are just ready to pot off. We see many plants rooting freely from merely touching the damp ground at this late period of the season, which in summer require glasses over them. Such plants would as readily, or more so, root in water now; but experience is wanting on the point. That experience could easily be obtained now by placing so many saucers on the surface of the ground, under a west wall, to be filled with the bottom-shoots of *Geraniums* and other bedders, which seem now to be ready to emit roots if they had more stimulus and more moisture, which the wall and the water would supply. An old mat or rug might be hooked over them at night; and if they succeeded there, or in a cool frame, nothing could be more simple or more handy than to keep double, or four times, the usual number through the winter, as they would occupy but a small compass. The plan incurs no expense, and is, certainly, well worth the attention of a great number of amateurs.]

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 25.)

PEARS.

CHAUMONTEL (*Bezi de Chaumontel*; *Beurré de Chaumontel*; *Beurré d'Hiver*; *Guernsey Chaumontel*; *Grey Achan*; *Oxford Chaumontel*; *Winter Beurré*).—Fruit large, oblong, or obtuse-pyriform, irregular and undulating in its outline. Skin rather rough, yellowish-green, covered with numerous russet spots and patches, and with brownish-red next the sun. Eye open, set in a deep, irregular basin. Stalk an inch long, inserted in a deep knobbed cavity. Flesh yellowish-white, buttery and melting, rich, sugary, and highly perfumed.

A dessert pear of high merit, in use from November till March.

De Chypre. See *Early Rousselet*.

CITRON DES CARMES (*Gros St. Jean*; *Madeleine*; *Early Rose Angle*).—Fruit below medium size, obovate. Skin smooth and thin, yellowish-green when ripe, and with a faint tinge of brownish-red on the side next the sun. Eye small, and set in a shallow depression. Stalk an inch and a half to two inches long, inserted without depression. Flesh yellowish-white, tender, melting, very juicy and sweet.

A delicious summer pear, ripe in the end of July and beginning of August. It is very apt to crack.

Citron de Septembre. See *White Doyenné*.

COLMAR (*D'Auch*; *Bergamotte Tardive*; *Colmar Dorée*; *De Maune*).—Fruit above medium size, obtuse-pyriform. Skin smooth, pale green, changing to yellowish-green, strewed with grey russet specks. Eye large and open. Stalk an inch to an inch and a half long, stout and curved. Flesh greenish-white, buttery, melting, tender, and with a rich sugary flavour.

An old and justly-esteemed dessert pear, ripening in

succession from November till March. The tree is not an abundant bearer, and requires to be grown against a wall.

COLMAR D'AREMBERG (*Fondante de Jaffard; Kartoffel*).—Fruit large, obovate, uneven, and bossed in its outline. Skin lemon coloured, marked with spots and patches of russet. Eye rather small and partially closed, set in a very deep round cavity. Stalk short, and rather slender, deeply inserted. Flesh yellowish-white, coarse-grained, half-melting, juicy, and briskly flavoured.

A fine-looking but very coarse pear, ripe in October.

Colmar Charnay. See *Arbre Courbé*.

Colmar Deschamps. See *Beurré d'Aremberg*.

Colmar Doré. See *Passe Colmar*.

Colmar Doré. See *Colmar*.

Colmar Epineux. See *Passe Colmar*.

Colmar Hardenpont. See *Passe Colmar*.

Colmar d'Hiver. See *Glou Morceau*.

Colmar Jaminette. See *Jaminette*.

Colmar du Lot. See *Belle Epine du Mas*.

COLMAR NEILL.—Fruit very large, obovate. Skin smooth and glossy, of a uniform yellow colour, dotted and lined with cinnamon-coloured russet. Eye open, set in a wide and rather deep basin. Stalk an inch long, inserted in a small, close cavity. Flesh white, very tender, buttery and juicy, with a high musky flavour. Ripe in October, but soon becomes mealy.

Colmar Nelis. See *Winter Nelis*.

Colmar Preul. See *Passe Colmar*.

Colmar Souverain. See *Passe Colmar*.

COLMAR VAN MONS.—Fruit medium sized, pyramidal, irregular and uneven in its outline. Skin yellowish-green, much covered with a thick coat of smooth brown russet. Eye small and open, set in a small round basin. Stalk three quarters of an inch long, obliquely inserted in a narrow cavity. Flesh yellowish, buttery and melting, very juicy and sweet, but not highly flavoured. Ripe from November to January.

COMTE D'ALLOS.—Large and pyriform, very much the shape of Marie Louise. Skin pale yellow, with a greenish tinge, covered all over with large russety freckles, and with a coating of russet round the eye. Eye very small and open. Stalk three quarters of an inch long. Flesh yellowish, coarse-grained, and rather gritty, melting, juicy, sweet, and richly flavoured, but soon rots at the core. Ripe in December.

COMTE DE FLANDRE.—Fruit very large, pyriform. Skin almost entirely covered with large freckles of cinnamon-coloured russet. Eye open, and rather large, with very short deciduous segments. Stalk three quarters of an inch long, slender. Flesh yellowish, melting, juicy, and sugary, with a rich and agreeably perfumed juice.

A first-rate pear, well worth growing, ripe in November and December.

COMTE DE LAMY (*Beurré Quetelet; Beurré Curtet; Dingler; Marie Louise Nova*).—Fruit medium sized, roundish-obovate. Skin yellowish-green, with brownish-red next the sun, and strewed with russety dots. Eye small, set in a slight depression. Stalk an inch long, set in a small cavity. Flesh white, tender, buttery, melting, sugary, and richly flavoured.

A delicious pear, ripe in October. Tree hardy, a good bearer, and succeeds well either as a standard or pyramid.

Comte de Limoges. See *Belle Epine du Mas*.

Comtesse de Frénol. See *Figue de Naples*.

Comtesse de Treveren. See *Uvedale's St. Germain*.

CONSEILLER DE LA COUR (*Bô de la Cour; Beau de la Cour; Marechal de la Cour*).—Fruit below medium size, pyriform. Skin smooth, yellowish-green, covered with dark green dots, and with a patch of russet round the

stalk. Eye large and open, set in a deep, wide hollow. Stalk above an inch long, slender, obliquely inserted, without depression, by the side of a fleshy lip. Flesh white, half-melting, juicy, and briskly flavoured, but not particularly rich. Ripe in January.

Coule Soif. See *Summer Franc Real*.

CRASANNE (*Bergamotte Crasanne; Beurré Plat; Crasanne d'Automne*).—Fruit large, roundish, and flattened. Skin greenish-yellow, marked all over with veins and dots of grey russet. Eye small and open, set in a deep, round, and narrow basin. Stalk two to two inches and a half long, slender and curved, inserted in a small cavity. Flesh white, buttery, melting, rich and sugary, with a fine perfume.

A fine old pear, ripe during November and December. The tree is not a good bearer, and requires to be grown against a wall.

Crasanne d'Austrasie. See *Jaminette*.

Crasanne d'Automne. See *Crasanne*.

Crasanne d'Eté. See *Summer Crasanne*.

CRAWFORD (*Bancrief; Lammas* [of the Scotch]).—Fruit below medium size, obovate. Skin greenish-yellow, changing to pale yellow, with sometimes a tinge of brownish-red next the sun. Eye open. Stalk an inch long. Flesh white, buttery, juicy, sweet, and with a musky flavour. Ripe in the middle of August.

(To be continued.)

PEARS DESIRABLE FOR A CLAY SOIL.

PLEASE to give me the names of some half dozen good Pears. The trees being free bearers, as standards, and grow large and ornamental. The situation is about the centre of Cheshire. The soil a rather strong and rich loam, and marl or clay subsoil.—K.

[*Aston Town, Marie Louise, Thompson's, Beurré d'Amanlis, Comte de Lamy, Grey Doyenné, Hessle, Monarch, Louise Bonne of Jersey, Bon Chrétien, Fondante, Winter Nelis, Beurré de Rance.*]

THE SCIENCE OF GARDENING.

(Continued from page 8.)

LEAVES have the power of absorbing moisture as well as of emitting it, which power of absorption they principally enjoy during the night. With this view M. Bonnet, of Geneva, placed a number of leaves over water, so as that they floated on it, but were not immersed; some with the upper surface, and others with the under surface applied to the water. If the leaf retained its verdure the longest with the upper surface on the water, the absorbing power of the upper surface was to be regarded as the greatest; but if it retained its verdure the longest with the under surface on the water, then the absorbing power of the under surface was to be regarded as the greatest. Some leaves were found to retain their verdure the longest when moistened by the upper surface, and some when moistened by the under surface; and some were altogether indifferent to the mode in which they were applied to the water. But the inference deducible from the whole, and deduced accordingly by Bonnet, was, that the leaves of herbs absorb moisture chiefly by the upper surface, and the leaves of trees chiefly by the under surface. What is the cause of this singular disparity between the absorbing surfaces of the leaf of the herb, and of the tree? The physical cause might be the existence of a greater or of a smaller number of pores found in the leaves of the herb and tree respectively. The chemical cause would be the peculiar degree of affinity existing between the absorbing organs and the fluid absorbed. Duhamel seems to have been content to look to the physical cause merely, regarding the lower surface of the leaf of the tree as being endowed with the greater capacity of absorbing moisture, chiefly for the purpose of catching the ascending exhalations which must necessarily come in contact with it as they rise, but which might possibly have escaped it if absorbable only by the upper surface, owing to the increased rapidity of their ascent at an increased elevation;

and regarding the upper surface of the leaf of the herb as being endowed with the greater absorbing power, owing to its low stature, and to the slow ascent of exhalations near the earth.—(*Keith's Botanical Lexicon*.)

During the day leaves also absorb carbonic acid gas, which they decompose, retaining its carbon, and emitting the greatest part of the oxygen that enters into its composition. In the night this operation is in a certain measure reversed, a small quantity of oxygen being absorbed from the atmosphere, and a yet smaller proportion of carbonic acid emitted.

It has occasionally been observed, however, that the bulk of oxygen given off by the leaf has not been precisely equal to that of the carbonic acid absorbed, and hence it is also fairly concluded that a portion of the oxygen of the carbonic acid which enters the leaf is retained, and made available in the production of the various substances which are formed in the vascular system of different plants. On the other hand, it is stated by Sprengel that, if compounds containing much oxygen be presented to the roots of plants, and thus introduced into the circulation, they are also decomposed, and the oxygen they contain in part or in whole given off by the leaves, so that, under certain circumstances, the bulk of the oxygen which escapes is actually greater than that of the carbonic acid which is absorbed by the leaves. Such is the case, for example, when the roots are moistened with water contained carbonic, sulphuric, or nitric acids.

As a general rule, the quantity of carbonic acid given off during the night is far from being equal to that which is absorbed during the day. Still it is obvious that a plant loses carbon precisely in proportion to the amount of this gas given off. Hence, when the days are longest, the plant will lose the least, and where the sun is brightest it will gain the fastest;—since, other things being equal, the decomposition of carbonic acid proceeds most rapidly where the sky is the clearest, and the rays of the sun most powerful. It thus appears why in Northern regions, where spring, summer, and autumn are all comprised in one long day—vegetation should proceed with such rapidity. The decomposition of the carbonic acid goes on without intermission, the leaves have no night of rest; but Nature has kindly provided that, where the season of warmth is so fleeting, there should be no cessation to the necessary growth of food for man and beast.—(*Johnston's Lectures on Agricultural Chemistry*.)

Carbonic acid gas in small proportions is essential to the existence of leaves, yet it only benefits them when present in quantities not exceeding one-twelfth of the bulk of the atmosphere in which they are vegetating; though one twenty-fifth is a still more favourable proportion; and as hotbeds, heated by fermenting matters, rapidly have the air within their frames contaminated to a much greater extent than the proportions above-named, thence partly arises the injury to the plants they contain from a too-long neglected ventilation. The leaves turn yellow from the excess of acid, which they are unable to digest, and which consequently effects that change of colour which also occurs in autumn, and which will be more fully considered when the decay of plants is detailed.

It is the accumulation of carbonic acid and other gaseous matters, such as sulphurous acid and ammonia, which renders ventilation so essential to the health of plants in forcing-pits and hothouses. They cannot inhale air overloaded with these contaminations without being speedily injured, and the proportions of those gases which rapidly cause disease, or even death, are much less than the gardener usually suspects; for if the sulphurous acid amounts to no more than one cubic foot in ten thousand of the air in a hothouse, it will destroy most of its inhabitants in two days. To avoid such destruction, for the comfort of visitors, and, above all, for the sake of the plant's vigour, air should be admitted as freely as the temperature will permit. The foul warm air can be easily allowed to escape through ventilators in the most elevated parts of the roof, and fresh warm air can be as readily supplied through pipes made to enter near the flooring of the house after passing over hot water, or other source of heat.

We are quite aware that Mr. Knight has stated that he paid little attention to ventilation, and that plants will be vigorous for a time in Wardian cases; but this does not prove that their Creator made a mistake when he placed vegetables in the open air. Plants confined in houses or other close structures may be made to grow in spite of such confinement; but all experience proves that other favourable circumstances, such as heat, light, and moisture, being equal, those plants are most vigorous and healthy which have the most liberal supply of air.

Though an excess of carbonic acid gas is detrimental, yet its

partial absence from the atmosphere is equally fatal to a plant's leaves, for without it they wither and fall. It is not a matter of indifference, therefore, whether a greenhouse or hothouse be whitened with a solution of lime, which absorbs that gas from the air, a fortnight or only a day or two before plants are introduced or forcing commenced; for it is the infliction of several trivial injuries to a plant that prevents its successful cultivation; no one who is entitled to practise in the higher departments of his art ever makes such great blunders as at once to destroy the plants under his care. That fresh-limed walls do injure plants is beyond dispute, for the plants in a row of small pots next the back wall in a propagating-house which had been thus whitened only the day before, have been more than once observed to be the only plants that acquired a sickly hue, and shed nearly all their leaves. Fleshy-leaved plants would not be so liable to injury if obliged to be brought into a house fresh limed, for these require much less carbonic acid daily than thin-leaved plants. Five plants of *Cactus speciosissimus* in the injured row just noticed were not apparently affected. Thin-leaved plants consume daily from five to ten times their own bulk of carbonic acid gas, whilst fleshy-leaved plants, such as the Cacti, Aloes, Agaves, and Mesembryanthemums, do not consume more than their own or double their own bulk of that gas.

Other species of decomposition also, besides that of carbonic acid, go on in the leaf, or are there made manifest. Thus when plants grow in a soil containing much common salt (chloride of sodium) or other chlorides, Sprengel and Meyen observed them to evolve chlorine gas from their leaves. This takes place, however, more during the night than during the day. Some plants also give off ammonia, while others (*Cruciferae*) emit from their leaves pure nitrogen gas (*Daubeny's Three Lectures on Agriculture*, p. 59). This emission of nitrogen from the leaves is, according to Schultz, not an uncommon occurrence, and on a dark day may amount to nearly two-fifths of the entire bulk of the gas given off.—J.

(To be continued.)

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 21.)

ASTER—(Continued).

- ASTER MUTABILIS (changeable). *Stem* smooth; *branches* twiggy; *leaves* sub-stem-clasping, upper ones lanceolate-acuminate, entire, lower ones lanceolate, narrowed at the base, serrated; *involucre* shorter than disk, lax. 2 ft. Purple. September. N. America.
- A. NEMORALIS (grove). *Branches* corymbose-fastigate; *branchlets* filiform, one-flowered; *leaves* linear-lanceolate, narrowing at base, nerveless, dotted, rather scabrous, stem-ones reflexed; *involucre* lax, imbricated, half length of disk, leaflets pointed. 1 ft. Lilac. August. N. America.
- A. NOVÆ-ANGLIÆ (New England). *Stem* simple, erect, hispid; *flowers* terminal, crowded; *leaves* lanceolate, stem-clasping, entire, eared at base; *involucre* scales lax, lanceolate, coloured, longer than disk. 6 ft. Purple. September. N. America.
- A. ——— RUBER (red-flowered). 6 ft. Red. July. North America.
- A. NOVI BELGII (New York). *Stem* terete, smooth, paniculate; *branches* sub-divided; *branchlets* one-flowered, solitary; *leaves* sub-stem-clasping, lanceolate, smooth, edge scabrous, lower ones serrated; *involucre* loosely imbricated, leaflets linear-lanceolate. 4 ft. Purplish-blue. September. N. America.
- A. NUDIFLORUS (naked-flowered). 1 ft. Purple. August. North America.
- A. PALADOSUS (marshy). *Leaves* linear, stem-clasping, erect, entire, very smooth, edge scabrous; *peduncles* nearly naked; *involucre* squarrose, with two leaves beneath. 3 ft. Blue. August. N. America.
- A. PANNONICUS (Hungarian). *Stem* simple, smooth at the top, corymbose; *leaves* linear-lanceolate, entire, edge hispid; *involucre* scales lanceolate, blunt, equal. 2 ft. Violet. July. Hungary.
- A. PATENS (spreading). *Stem* branched, hairy; *branches* spreading, long, few-flowered; *leaves* oblong-lanceolate, entire, cordately stem-clasping, downy on each side; *involucre* scales imbricated, lanceolate, rather spreading. 2 ft. Purple. Oct. N. America.
- A. PEREGRINUS (foreign). 1 ft. Blue. July. N. America.

- A. PHLOGIFOLIUS** (Phlox-leaved). *Stem* quite simple, downy, paniced at top; *leaves* lanceolate, entire, cordately stem-clasping, downy beneath; *involucre* scales lax, imbricated, lanceolate. 2 ft. Violet. September. N. America.
- A. PREALTUS** (very tall). 6 ft. Vermilion. September. North America.
- A. PRENANTHOIDES** (Prenanthes-like). *Branchlets* pilose; *leaves* stem-clasping, spatulate-lanceolate, serrate in middle, cordate at base; *involucre* scales lanceolate, squarrose. 3 ft. Blue. September. N. America.
- A. PULCHELLUS** (pretty). *Stem* one-flowered; *leaves* entire, radical ones spatulate, stem ones linear-lanceolate; *involucre* scales nearly equal, linear, acuminate. 1 ft. Purple. June. Armenia.
- A. PULCHERRIMUS** (prettiest). 2 ft. Blue. September. North America.
- A. PUNCTATUS** (dotted). *Branchlets* corymbose-fastigiata, divaricated; *leaves* linear, remote, three-nerved, acuminate, dotted, edge scabrous; *ray* usually ten-flowered; *involucre* imbricated, half length of disk. 3 ft. Violet. Aug. Hungary.
- A. PUNICEUS** (red-stalked). *Stem* hispid; *leaves* stem-clasping, lanceolate, serrated, rather scabrous; *branches* paniced; *involucre* lax, longer than disk, leaflets linear-lanceolate, nearly equal. 8 ft. Blue. September. N. America.
- A. ——— DEMISSUS** (dwarf). 2 ft. Blue. Sept. Gardens.
- A. RAMOSUS** (branched). A variety of *A. alpinus*. 1 ft. Purple, red. June. N. America.
- A. RIGIDUS** (stiff-leaved). *Stem* not branched; *leaves* linear, alternate; *flowers* solitary, terminal; *involucre* scaly, swelling, round. 1 ft. Purple. September. N. America.
- A. RIVULARIS** (river-side). 3 ft. White. Sept. N. America.
- A. SANGUINEUS** (bloody). 3 ft. Reddish-blue. September. N. America.
- A. SEROTINUS** (late). *Branches* corymbose, smooth; *branchlets* one-flowered; *leaves* oblong-lanceolate, sessile, smooth, edge scabrous, lower ones serrated; *involucre* scales lanceolate, spreading. 3 ft. Blue. August. N. America.
- A. SIBIRICUS** (Siberian). *Stems* striated; *leaves* lanceolate, sub-stem-clasping, serrated, pilosely-scabrous; *involucre* lax, scales lanceolate, leafy, acuminate, hispid. 2 ft. Blue. August. Siberia.
- A. SIKKIMENSIS** (Sikkim). *Stem* erect, branched, smooth; *leaves* lanceolate-acuminate, spinosely denticulate, radical ones larger, stalks longer, stem ones sessile; *corymbs* many-headed, leafy, peduncles and pedicels downy; *involucre* leaflets linear-acuminate, sub-squarrose. 2 ft. Blue. September. Sikkim.
- A. SPECTABILIS** (showy). *Branches* corymbose; *leaves* lanceolate, rather scabrous, lower ones serrated; *involucre* scales leafy, lax, rather wedge-shaped, rather pointed, squarrose. 2 ft. Blue. August. N. America.
- A. SQUARROSUS** (squarrose). *Stem* branched, hairy; *branchlets* one-flowered; *leaves* ovate-acuminate, entire, reflexed, edge hispid; *involucre* imbricated, scales linear-wedge-shaped, pointed, squarrose. 2 ft. Blue. June. N. America.
- A. STRICTUS** (straight). *Stem* one or few-headed; *leaves* sessile, narrow-lanceolate, serrated, scabrous. 1 ft. Violet. October. N. America.
- A. SURCULOSUS** (spriggy). This is a dwarf, and its roots creeping. *Stems* weak, simple; *leaves* lanceolate, long, rather smooth; *involucre* scales linear-oblong, blunt. 2 ft. Purple. August. N. America.
- A. TARDIFLORUS** (late-flowered). *Stems* prostrate, heads terminal; *leaves* sessile, lanceolate, narrowed at base, serrated, smooth; *involucre* lax, leaflets lanceolate-linear nearly equal, smooth. 2 ft. Blue. September. N. America.
- A. TENUIFOLIUS** (slender-leaved). *Stem* smooth, erect, branched; *branchlets* one-flowered; *leaves* linear-lanceolate, tapering at each end, entire, edge hispid; *involucre* imbricated, scales oblong, lax, pointed; *peduncles* leafy. 3 ft. White. August. N. America.
- A. TOMENTOSUS** (woolly). 2 ft. Pink. July. New South Wales.
- A. TORTIFOLIUS** (twisted). 1 ft. Purple. Sept. N. America.
- A. TRINERVIS** (three-nerved). 2 ft. White. August. Nepaul.
- A. UNDULATUS** (waved). *Stem* paniced, hispid; *branchlets* one-sided, very leafy, one-flowered; *leaves* oblong, cordate, stem-clasping, entire, pilose, rather wavy, lower ones ovate, cordate, sub-serrate, stalked, stalks winged and wider at the base; *involucre* imbricated. 3 ft. Purple. September. N. America.
- A. VERSICOLOR** (various-coloured). *Stem* much branched,

smooth; *leaves* sub-stem-clasping, broadly lanceolate, partly serrate, radical-ones serrate in the middle, upper ones entire; *involucre* scales lanceolate, lax, shorter than disk. 3 ft. White and purple. N. America.

The Asters (Starworts) are, as the above list proves, a very large tribe of plants. There are at least fifty more recorded species; but we have selected the best, and most showy, and most distinct. They bloom from June till November, and, consequently, are valuable as ornaments to the flower-borders when most of the other floral beauties are gone to rest. The favourite colour, blue, predominates; and as they are mostly natives of the colder regions of the earth, they are very hardy. These qualities recommend them to the lover of *old-fashioned flowers*; and everybody that has a garden should procure as many species as he can find room for, and grow them in a rich, well-drained sandy loam, placing the taller species behind and the dwarfs in front of the border. The tall-growers are well fitted to plant among shrubs, because the bright-coloured flowers relieve the monotonous green of their foliage.

Propagated easily by taking up the plants in early spring and cutting them into moderate-sized divisions, planting them immediately in fresh soil in the borders. As they bloom when the equinoctial gales prevail, they should be (especially the taller-growing sorts), well secured from the winds of autumn with stakes and ties, allowing the shoots freedom to spread and show their beautiful flowers. The earlier-blooming species might be propagated with advantage as soon as they have done flowering; they would then make fresh roots before winter sets in, and, consequently, flower more strongly the first year after being divided.

(To be continued.) T. APPELBY.

ENTOMOLOGICAL SOCIETY'S MEETING.

THE September Meeting of the Entomological Society was held on the 5th ult., Dr. J. E. Gray, F.R.S., the President, in the chair. As usual at this season of the year, the business of the Meeting was almost entirely confined to the exhibition of recent captures, members being too much occupied with their nets to be able to devote much time to their pens and pencils.

Dr. Knaggs exhibited a specimen of *Polia occulta*, taken at Camden Town, and some other fine Moths taken this season in the south of England, including *Clostera anachozeta*, a species hitherto considered as a doubtful native of this country, *Nonagria concolor*, *Eupithecia expallidata*, &c. Likewise the living Caterpillar of *Timandra prataria*, which was found feeding on *Polygonum aviculare*.

Mr. McLachlan exhibited a fine specimen of *Hadena peregrina*, a rare species of Moth lately taken at Freshwater, in the Isle of Wight.

Mr. Allchin exhibited a specimen of *Leucaria musculosa*, taken at Brighton, and *Nola centonalis*, from Folkestone.

Mr. S. Stevens exhibited a living specimen of *Locusta migratoria*, taken near Brighton, where it has been unusually common this season.

Of foreign insects the following were exhibited,—viz., a box of beautiful longicorn Coleoptera sent from Sierra Leone by Mr. Foxcroft; also, by Mr. S. Stevens, a portion of the collection of Lepidoptera made by Mr. Trimmings, in South Africa, containing a fine series of Butterflies of the family Pieridæ.

Mr. Ianson exhibited a fine new species of Adelops, a genus of minute Beetles destitute of eyes, found by Monsieur Jacquelin Duval in the Pyrenees.

Mr. Pascoe announced that the collection of insects, of all orders, belonging to the United Service Museum, was about to be disposed of by private contract.

Mr. Tegetmeier stated that he had recently noticed that bees resorted to a chalybeate spring for water, in preference to all other water in the neighbourhood.

VARIETIES.

THE MONTHS IN THE COUNTRY: *October*.—We draw up the curtain upon the month of October in the heart of a rural orchard of old Apple trees, and reveal one of the prettiest and pleasantest sights which the country can afford at this season of the year. The old trees were planted somewhat arbitrarily long before the modern notions of planting were current, and for more than one generation they have been suffered to have their

own way; all the assistance they have derived from man being some occasional lopping and the advantage of a prop here and there under their long projecting branches when the fruit grew heavy, to save them from snapping short with their burdens. You note that one of the old trees has fallen flat on its side, notwithstanding these timely props; perhaps it was overthrown by some equinoctial storm. But, fallen and prostrate though it be, the gallant old "russet" has no thought of dying: instead of doing so, it has shot out new roots along the whole length of its trunk into the ground below, and new branches into the air above, and is bearing a famous crop of russetings, as well on the old limbs as the new. Some of the ancient trees which yet stand firm in the ground present the most grotesque figures to the view; you would think, to look at them, that it was impossible they should ever bear fruit, so ragged, broken, decayed, bulbous and distorted are their trunks and larger branches—so mossy with age, and so gouty and crippled in the limbs; yet there is the fruit, ripe, mellow, and ruddy, hanging upon them by bushels, and bending by its weight the sturdy props put up to sustain it. The ground you tread on is more a carpet of spongy moss than a sward of grass; but you can scarcely see what it is, for the piles of Apples which cover it thickly in so many places, and to which fresh accumulations are being heaped every moment. A company of men and young girls are busy in shaking down and plucking the ripe fruit from the trees; ladders are carefully placed against the branches, while some of the younger and more active lads have climbed into the more top-most boughs, inaccessible by any other means, and, rifling them of their treasures, drop them as they gather them into the baskets or aprons of the girls beneath. The baskets as fast as they are filled are emptied to increase the heaps upon the ground; and as soon as one tree is stripped of all its blushing honours, the merry workers, with many a laugh and time-honoured joke, move on with their ladders and baskets to the next to repeat the process. As for the Apples, which are all destined to be made into cider, they will lie on the ground in the orchard for some days, perhaps even for some weeks, until the frosts, which are now pretty regular during the hour or so that precedes the dawn, have laid hold of them, and changed a portion of their substance into substance of a more saccharine quality, and thus perspective improved the flavour of the cider that is to be. At the right time the Apples will be thrown into the mill and ground into pulp or "must;" the "must" will be enclosed in hair-cloths, and subjected to the squeezing of the cider-press; and the juice being led off, will have to undergo the ticklish processes of fermentation and fining, and, according to the care, watchfulness, and ability brought to bear upon the business, may either turn out a delicious nectar, almost equal to the fruit of the Grape, or a sour, acrid, smatch-ridden beverage, tolerable only to rustic palates. The business of cider-making is always one of considerable uncertainty, and appears to be but indifferently understood even in the cider-making districts, if we are to judge from the constantly varying flavour and value of the products of the same localities in different years. Perry is made from Pears by a process analogous to, and almost the same in detail, as that which converts Apples into cider; but its results are said to be from year to year more certainly satisfactory. To the fanciful eye, nearly all the trees of the field appear loaded with fruit in October; the leaves have now the mellow look of ripe Apples, and are tinged with red and brown hues, which, as the month grows older, take the place of the green and supersede it altogether. This is a favourite season with the artist, who likes now to take his colours into the woods, and copy the gorgeous tinting which heralds the fall of the leaf and the coming of winter. That clear transparency in the air, which was so remarkable last month, now begins to give place to mists, which are the result of partial congelation, and which, from the cool tone they impart to the atmosphere, heighten by contrast the effect of the warm hues of the foliage. The sky, where not cloudy, grows of a deeper blue; banks of rain-clouds are seen forming near the horizon, and in all the aerial phenomena of this month there is a striking resemblance to those of April—with the exception, however, that the changes from wet to dry, from sunshine to shower, are not so frequent nor so sudden. Sometimes there is another exception, and it is a welcome one when it comes: it will happen now and then, that so soon as the equinoctial gales have blown off, the weather remains calm, sunny, and almost cloudless during nearly the whole of the month. This state of things, however, though highly acceptable, is not so frequent in our climate as it is on the continent, or in the back settlements of North America,

in which last-named region, indeed, it occurs with undeviating regularity, and affords an excellent opportunity to the inhabitants to prepare for the rigours of their long season of frost. When, after a week or two of this second summer there comes a sudden change of wind, bringing showers and gloom, we seem to step all at once into the horrors of winter. The dead leaves shower down in masses, covering the ground; among them lie the acorns, the beech-mast, and the split prickly globes of the horse-chestnut, with the polished red-brown fruit shining like gems in the soft muddy soil. At this crisis, the farmer and the breeder who has the privilege of doing so will turn his swine into the forest, that they may fatten upon the spoils which autumn scatters thus liberally upon the ground. These hungry, all-devouring gentry are sometimes in the charge of a swineherd, who will rear with hurdles a short fenced fold for their reception at night, and lead them out to the pastures by day. In a little time the pigs learn to do without his guidance, and will wander for miles foraging for themselves, returning invariably at sundown, each in the rear of some experienced hog, to the shelter of the fold. They are not very ceremonious on these occasions; we remember, one fine October day, being seated at a pic-nic nutting dinner, when, turning a glance towards a fine large pound-cake, which was waiting for the dessert, we beheld it in the act of disappearing down the throats of a dozen young porkers, who had nosed it from a distance, and who could only be prevailed upon to retreat by a shower of camp-stools launched at their heads from a dozen hands at once. A month in the forest at this season of "mast and pannage" does a good deal for piggy in the way of qualifying him for the butcher. The reader may perhaps remember that this mode of fattening swine is as old as any custom of this country—much older than our laws, or even our oldest ruins: it was common among our Saxon ancestors, and is frequently mentioned in "Domesday Book."—(*The Leisure Hour*.)

EIDER DOWN GEES.—The red soldiers patrolling the fortress look, from a distance, like spiders of cochineal on a gigantic Cactus. But what are they watching? They guard half-a-million of Eider geese, the property of the Danish Queen, nestling in the precipices of the rocks, cracks and tide-caves, in all the most inaccessible places. The gathering of the down of these privileged geese is attended with numerous dangers, but brings to the Queen about £3000 annually,—every goose about 1½d.; hence they are honoured as were formerly their Roman sisters: no one is allowed to kill, disturb, or even calumniate them; they often alight upon the sentinels' shoulders, and though the poor soldier may be very hungry, which often happens in Denmark, yet he must not so much as look wistfully at her Majesty's goose, however plump and tempting.—(*Dissolving Views*.)

TRADE LISTS RECEIVED.

A Trade List of Nursery Stock, by Dillistone and Co., Sturmer, Essex, is a quarto sheet, and contains an enumeration and prices of such nursery stock as these gentlemen have to offer in the trade.

William Chater's List of Superb New Double Hollyhocks, Saffron Walden Nursery, 1859—60. This is an octavo pamphlet, describing the new varieties of this favourite flower, and for which the Saffron Walden Nursery is so celebrated. All the new seedlings are described, and selections are furnished of the best varieties already in cultivation.

A Catalogue of Plants, Trees, Shrubs, &c., cultivated for sale by Richard Bradley and Son, Halam Nursery, near Southwell, Notts, is a well-arranged pamphlet of fifty-two pages, well got up, but rather blemished with orthographical errors, evidently arising from oversight.

TO CORRESPONDENTS.

VEGETATION IN THE ISLAND OF LEWS.—We have received (Oct. 14) from Sir James Matheson, Bart., of Lews, a box containing flowers of *Rhododendron ponticum* and of the Scotch Laburnum, which were grown in the open air in that far northern island of the sea. Had we been told that such things were we should hardly have believed them; but, true it is that while we in the south are drawing near our warm firesides, the chief of the Lews is regaled with summer delights from his shrubbery at Stornoway Castle in the Hebrides.

GARDENING BOOK FOR INDIA (W. T.).—As giving directions for the general practices of gardening applicable to all parts of the world, Mackintosh's "Book of the Garden," and Loudon's "Encyclopædia of Gardening," will give you full and sound advice. There is a little volume by Mr. Speede, "The Handbook of Indian Gardening," which will be useful. Messrs. Smith & Elder perhaps have a copy.

DISEASED PRIMULA SINENSIS SEEDLINGS (W. D. A.).—The leaves turning black and the stalks softening probably are symptoms of gangrene at the collar of the plants. This disease is occasioned by irregular, and, at times, excessive moisture, attended by a low temperature; but we cannot speak authoritatively without knowing the treatment pursued.

WIRING WALLS FOR PEACH TREES (M. R.).—Use galvanised iron wires; have them eight inches apart, and the studs may be eighteen inches from each other. We are not aware of any disadvantages arising from the use of this wire.

MONTHLY DIRECTIONS (A Very Plain Gardener).—Last year, week by week, we gave "Out-door Gardening," and this year we are pursuing a similar plan with "In-door Gardening;" and we are quite sure that it would be as irksome to you as to every other reader if we went again and again over the same ground. Buy our "Garden Manual;" that will give you the temporary information you require, and write to us for any additional directions you need, a reply shall be given fully and unweariedly in the pages of THE COTTAGE GARDENER.

WALL TREES FOR DURHAM (E. X. M.).—You will require about 36 trees in all for 200 yards of walling, to be planted at sixteen feet apart. We should recommend you the following:—9 APPLES.—*Irish Peach, Kerry Pippin, Cox's Orange Pippin, Ribston Pippin, Adams's Pearmain, Cockle Pippin, Keddeleston Pippin, Margil, and Sturmer Pippin.* 9 PEARS.—*Jargonelle, Williams's Bon Chrétien, Louise Bonne of Jersey, Fondante d'Automne, Beurré Superfin, Thompson's, Winter Nelis, Josephine de Malines, and Beurré de Rance.* 6 PLUMS.—2 *Green Gage, 2 Purple Gage, and 2 Cox's Golden Drop.* 6 CHERRIES.—*Mayduke, Bigarreau, Black Tartarian, Florence, and 2 Morello.* 4 PEACHES.—*Early York, Royal George, Barrington, and Dese Tardive.* 2 NECTARINES.—*Elruge and Violette Hâtive.*

MOVING HELIOTROPES (Leila).—Heliotropes never do any good after they are once planted out; and there are very few people who can manage the operation of lifting them without killing them one half, owing to the very long fang roots they make, with little or no fibres. Fuchsias will lift like Daisies, and keep like Potatoes; but every plant now out in the garden will be four times in more danger than it need be in winter, if one degree of frost be allowed to reach it before it is lifted.

NAME OF PEAR (A. B. C.).—The Pears you sent are *Beurré Bosc*.

NAMES OF PLANTS (An Amateur Gardener).—Your plants are as follow:—*Caladium pictum.* 1, we take from the imperfect specimen sent, to be *Latræa cristata*, the Crested Prickly-toothed Buckler Fern. Did you find this wild, and if so, where? 2. *Asplenium adiantum-nigrum*, the Black Spleenwort. 3. *Selaginella*, or *Lycopodium involens*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

NOVEMBER 18th and 19th. WEST OF SCOTLAND ORNITHOLOGICAL ASSOCIATION (Pigeons and Canary Birds). *Secs.* Thos. Buchanan, 74, Argyle Street, Glasgow. Entries close the 7th of November.

NOVEMBER 19th to 23rd. CRYSTAL PALACE. (Canaries and British and Foreign Cage Birds). *Sec.* Mr. W. Houghton.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. *Sec.* Mr. J. Morgan, Bingley Hall, Birmingham.

DECEMBER 28th and 29th. POULTON-LE-FYLDE. *Sec.* J. S. Butler.

JANUARY 7th, 1860. BRADFORD. SINGLE COCK SHOW. *Secs.* Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford.

FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). *Sec.* Mr. W. Houghton. Entries close Jan. 14th.

CLASSES AT POULTRY SHOWS.

I SHALL be obliged if you will insert in your next issue the following hints, for the purpose of suggesting to the Committees of provincial Poultry Associations, and to that of Wilts in particular, the bad arrangement of the classes of poultry in their Shows. The Wilts Show held last December had but one class for Shanghais, and that was restricted to Cinnamon and Buff. The consequence was, such of us who were possessed of either Black, White, or Partridge Shanghais were unable to exhibit. Should there not be more than one class for a family so numerous as the Shanghais? Or if but one, at all events remove the restriction as to colour, which has the effect of limiting most materially the number of pens, and of excluding willing exhibitors.

Then, again, the same with regard to Game,—only one class. So that Duckwings, Black-reds, and Greys and Blues, all competed together—an arrangement greatly contributing to cause extra trouble in judging, and dissatisfaction with the decisions afterwards.

They had another class, which was called "Barndoor or any other sort, not pure bred." Now, the "not-pure-bred" should have been left out. The effect of it was to increase the errors made in the arrangement of the other classes. If they had left out the words "not pure bred," the persons possessing Partridge and Black Shanghais, Brahma Pootras, Black Hamburgs, &c., all of which were not provided for in other classes, might have shown in this. The class should have been called Barndoor or other sorts.

These remarks apply more particularly to the Shows of the Wilts Poultry Association. But there is another error often made by provincial Committees, that is, having but one class for

both Gold and Silver-pencilled Hamburgs, and only one class for Gold and Silver-spangled Hamburgs. The decisions of the Judges under these circumstances can scarcely ever be otherwise than to give dissatisfaction.

Let Silver-pencilled be shown against Silver-pencilled, and Golden against Golden, the same with reference to the Spangled. It would greatly contribute to the satisfaction with which the Judges' decisions would be received.—W. W.

WORCESTER POULTRY SHOW.

THIS Exhibition was held on the 11th, 12th, and 13th inst. We will publish our notes next week. The Rev. R. Pulleine and Mr. Baily were the Judges, and their awards of the prizes were as follows:—

GAME (Black-breasted and other Reds).—First and Second, Mrs. H. Sewell. Third, E. Archer. Highly Commended, W. Dawson; H. Horton. Commended, G. W. Moss; J. Moore; the Hon. W. W. Vernon.

GAME (Duckwings and other Greys and Blues).—First, W. Dunning. Second, the Hon. W. W. Vernon.

GAME (any other variety).—First, Master H. Baker. Second, W. Dawson.

DORKINGS (Coloured).—First and Porcelain Vase, Hon. W. W. Vernon. Second, G. Cargey. Third, Mrs. Pettat. Highly Commended, Capt. W. W. Hornby; Rev. J. F. Newton; C. H. Wakefield; T. Burgess, jun.; G. Botham; G. Cargey. Commended, Rev. M. Amphlett; Hon. W. W. Vernon; Rev. F. Thursby; Dr. J. D. Hewson; T. Williams.

DORKINGS (White).—First, Rev. G. F. Hodson. Second, Capt. J. Beardmore.

SPANISH.—First, J. R. Rodbard. Second, J. K. Fowler. Third, W. Moore. Highly Commended, T. Crowder; G. Botham; R. Wright.

COCHIN-CHINA (Cinnamon and Buff).—First, J. Price. Second, T. Stretch. Third, C. Felton. Commended, Miss V. W. Musgrove.

COCHIN-CHINA (Partridge and Grouse).—First, T. Stretch. Second, P. Cartwright. Highly Commended, Mrs. Herbert; Miss V. W. Musgrove. Commended, P. Cartwright.

COCHIN-CHINA (any other variety).—First, R. Chase. Second, Mrs. Herbert. Highly Commended, A. Peters. Commended, Mr. Dodd.

HAMBURGS (Gold-pencilled).—First and Second, W. Pierce. Highly Commended, W. Tavernor. Commended, W. C. Worrall; J. Martin.

HAMBURGS (Silver-pencilled).—First, J. Freeman. Second, G. Griffiths. Commended, G. Griffiths.

HAMBURGS (Gold-spangled).—First, Mr. Davies. Second, Mr. Carter. Highly Commended, Mr. Fell. Commended, Mr. Broadhead; Mr. Fell.

HAMBURGS (Silver-spangled).—First, Mrs. Pettat. Second, Capt. Beardmore.

POLANDS (Golden).—First and Second, Mrs. Pettat.

POLANDS (Silver).—First and Second, Mrs. Pettat. Highly Commended, G. C. Adkins.

POLANDS (Black with White Crests).—First, G. Ray. Second, T. Battye.

ANY DISTINCT VARIETY NOT INCLUDED IN THE ABOVE CLASSES.—First, G. Botham. Second, A. G. Brooke. Highly Commended, J. K. Fowler. Commended, Rev. F. Thursby.

TURKEY POULTS.—First, H. Hudson. Second, Miss M. Baggaley. Highly Commended, Mr. Williams; Miss Crawshaw.

GOSLINGS.—First, J. K. Fowler. Second, Mr. Williams.

DUCKLINGS (Aylesbury).—First, J. K. Fowler. Second, Mrs. M. Seamons. Highly Commended, Mrs. M. Seamons.

DUCKLINGS (Rouen).—First and Second, J. K. Fowler. Highly Commended, C. H. Wakefield; Mr. Price; Mr. Munn. Commended, C. H. Wakefield; T. Burgess.

DUCKLINGS (any other variety).—First and Second, Miss Perkins. Highly Commended, Capt. Beardmore.

BANTAMS (Game).—First, W. Evans. Second, J. Thornton. Highly Commended, W. Evans; J. Mapplebeck; R. Switt; Miss Perkins; T. H. D. Bayley.

BANTAMS (Gold and Silver-laced).—First, Rev. G. F. Hodson. Second, H. D. Bayley.

BANTAMS (Black or White).—First, Master Cattell. Second, Mr. Cartwright. Highly Commended, G. Norton; G. Finch. Commended, Miss Perkins; Hon. W. W. Vernon.

SWEEPSTAKES.

GAME COCK (any colour).—First, E. Archer. Second, H. Horton. Third, G. W. Moss. Highly Commended, Mrs. H. Sewell; G. W. Moss; Mr. Bottomley. Commended, N. N. Dyer.

SPANISH COCK.—Prize, J. R. Rodbard.

DORKING COCK (any colour).—Prize, Mr. Peters.

COCHIN-CHINA COCK (any colour).—Prize, Mr. Tomlinson.

GAME BANTAM COCK (any colour).—First, J. Rodbard. Second, Mr. Camm. Third, Mr. Burgess. Commended, Hon. W. W. Vernon; Messrs. H. and W. Griffiths.

PENCILLED HAMBURGH COCK.—Prize, Messrs. Carter and Valiant.

POLAND COCK.—Prize, Col. Clowes.

PIGEONS.

Powters (any colour).—First, Mr. Adkins. Second, W. Cannan. *Carriers.*—First, Mr. Boddy. Second, Messrs. Siddons and Sons. Commended, Messrs. Siddons and Sons; W. Cannan. (A good class.) *Almond Tumblers.*—First, R. Chase. Second, W. Cannan. Commended, J. Bailey, jun. *Mottled or other Tumblers.*—Prize, W. Cannan. Highly Com-

mended, Mr. Percivall. *Balds or Beards*.—Prize, Mr. Esquilant. Highly Commended, Master Rake; Mr. Oates. *Owls* (Silver or Blue).—Prize, F. Esquilant. Highly Commended, Mr. Morris. Commended, G. C. Adkins. *Owls* (any other colour).—Prize, Master Rake. *Barbs* (any colour).—First, J. Percivall. Second, Master Rake. *Fantails* (White).—Prize, H. Child. (A good class.) *Fantails* (any colour).—Prize, W. Cannan. *Nuns* (any colour).—First, Mr. Edge. Second, Mr. Child. *Trumpeters*.—Prize, G. C. Adkins. Commended, Mr. Mewburn; Mr. Oates. *Turbits*.—First, G. Goore. Second, Mr. Morris. Commended, Mr. Hewett; W. Cannan. *Jacobins*.—First withheld. Second, H. Child. (A very bad class.) *Runts*.—First, H. Child. Second, W. Cannan. Commended, Master Rake. *Any new or deserving variety*.—Prize, H. Child. Prize, J. Bailey, jun.

NOTES ON THE CRYSTAL PALACE POULTRY SHOW.

I AM not surprised that "XERES" should affect to ridicule my statement, that, at that Show, pen 22 contained two cocks, instead of a cock and pullet. I am well aware that, when through sickness or some other cause, the development of the comb and gills is retarded in young fowls it is frequently difficult to determine the sex. At the same time I may state that I examined the chicken in question very minutely, and I am quite confident—from the form of the tail-coverts, which were decidedly side-sickle feathers, and the pointed form of the saddle feathers, to say nothing of the hackle—that it was not a pullet, but a backward cockerel, in which, from some cause, the comb and gills had been retarded in growth.

I well know a precocious cockerel could not easily be made to pass muster for a pullet; but I am surprised that "XERES" should not be more conversant with the plumage of fowls, since he states he has been for years a large breeder of Spanish. As, however, I trust his mistake is one of judgment, and not intentional, I shall leave it to the bird itself to convince him, which it will most unmistakeably do in a few months.—B. P. BRENT.

POULTRY SHOW AT THE OUGHTIBRIDGE

AGRICULTURAL SOCIETY'S MEETING—OCTOBER 10TH.

WE are glad to see at the various Agricultural Societies' meetings now being held throughout the country, the deeply-increasing interest that the farmers are taking in the breeding of poultry—an interest that will in the end prove to them that a little extra attention paid to the feathered tribes will always yield a good profit. We do not despair yet of the Royal Agricultural Society restoring the various classes of poultry to its prize lists. The Exhibition at Oughtibridge was a very good one, both as regards the number of pens and the quality of many of the birds shown. The pens extended in a single tier along the left-hand side of the field, and were thronged throughout the day by a numerous and fashionable list of visitors.

In adult *Spanish*, Mrs. J. C. Hall, of Surrey House, Sheffield, had a very easy victory with two pens of her best birds. Seven pens of Spanish chickens were entered, many of the youngsters possessing considerable merit. Mrs. Hall was again victorious with a beautiful pen; and, if we are not very much mistaken, should her cock, a very early-hatched bird, go on, we shall hear of him again at the great winter exhibitions. The *Dorking* classes contained a few nice birds; but we do not consider them very well adapted to this district. The *Cochins* call for no particular remark, only one exhibitor having entered. The *Game* classes were excellent throughout. The Single Cocks exhibited by Mr. George Helliwell, of Walkley, the civil and attentive feeder, and Superintendent of the Sheffield Show, were, in the opinion of Mr. Challoner, quite equal to any birds he had ever seen. The classes for *Polands* and *Hamburgs* did not strike us as very first-rate; but in the classes for *Redcaps* (chickens), some very good birds were sent. The first-prize *Bantams* were good.

Ducks, *Geese*, and *Turkeys*, looked very plump and good, and seemed to remind us, by their forward preparation, of the important part they will have to play in the rapidly approaching festive season, when friend meets friend around the social board, and the mystic mistletoe and the holly mingle their branches on the wall.

Mr. T. Challoner, of Worksop, and Mr. Swift, of Southwell, officiated as Judges.

SPANISH.—First and Second, Mrs. J. C. Hall, Surrey House, Sheffield. Highly Commended, W. Silvester, 16, New Market Hall, Sheffield. *CHICKENS*.—First, Mrs. J. C. Hall, Sheffield. Second, W. Harvey, Sheffield. Highly Commended, Mrs. J. C. Hall, Sheffield.

DORKINGS.—First, J. Bedford, Oughtibridge. Second, J. Dransfield,

Penistone. Highly Commended, J. Dransfield, Penistone. *CHICKENS*.—First, J. Bedford, Oughtibridge. Second, T. Chambers, Walkley.

POLANDS (any colour).—First, W. I. Ronsley, Fir View. Second, W. Harvey, Sheffield. Highly Commended, J. Heeley, Hepworth.

COCHINS (any colour).—Prize, W. Harvey, Sheffield. Highly Commended, W. Harvey, Sheffield. *CHICKENS*.—Prize, W. Harvey, Sheffield. Highly Commended, W. Harvey, Sheffield.

GAME (any colour).—First and Second, G. Helliwell, Walkley. *CHICKENS* (any colour).—First, W. Bedford, Penistone. Second, G. Helliwell, Walkley.

GAME COCK (any colour).—First, G. Helliwell, Walkley. Second, J. Heeley, Hepworth.

GAME COCK SWEEPSTAKE (any colour).—First, G. Helliwell, Walkley. Second, W. Harvey Sheffield.

HAMBURGS (Golden-pencilled or Spangled).—Prize, C. Hayes, jun., Freedom Hill, Walkley. *CHICKENS*.—First, H. Liles, Stocksbridge. Second, W. Harvey, Sheffield. Highly Commended, T. Birch, Sheffield; J. Allen, Oughtibridge; H. Liles, Stocksbridge.

HAMBURGS (Silver-pencilled or Spangled).—First, C. Hayes, jun., Freedom Hill, Walkley. Second, W. Taylor, Hampton View, Walkley. *CHICKENS*.—First, W. Harvey, Sheffield. Second, C. Hayes, Freedom Hill, Walkley.

REDCAPS.—Prize, B. Oates, Owlerton. *CHICKENS*.—First, M. Hobson, Lee Bank, Loxley. Second, J. Woollen, Heeley.

BANTAMS (any colour).—First, G. Helliwell, Walkley. Second, W. Harvey, Sheffield.

GESE.—First, Mrs. Crawshaw, Coumes. Second, J. Siddons, White Lee.

DUCKS.—First, J. Hawley, Sheffield. Second, W. Bedford, Penistone. Highly Commended, A. Beckett, Sheffield; C. Hayes, jun., Freedom Hill, Walkley.

TURKEYS.—Prize, Mrs. Crawshaw, Coumes. *POULTS*.—First and Second, G. Dickinson, Dyson Holmes.—(From a Correspondent.)

WESTON-SUPER-MARE POULTRY SHOW.

THIS Exhibition was held on the 5th inst., and was, undoubtedly, the best that has taken place in connection with this Society; in fact, it is but very rarely indeed so uniformly good a collection of poultry is got together by any Committee. There was but one indifferent pen throughout the whole. The arrangements were complete and could not be improved, eliciting the general approval of those amateurs who visited the Exhibition. Very luckily the weather was also favourable, a bright autumnal day inducing out-door exercise, consequently the attendance was most satisfactory. The competition was confined to birds hatched during the present year, and, with a solitary exception, this rule was carefully respected by the competitors. The poultry as a whole were exhibited in first-rate condition, and most of the classes were well filled; but it is somewhat remarkable there was not a single entry of Golden-spangled Hamburgs, or Golden-spangled Polands.

The *Spanish* were the first class on the prize list, and in this variety J. R. Rodbard, Esq., took both premiums with specimens of very high character. In *Grey Dorkings* the Exhibition was the best we have yet seen this season. They had throughout been evidently very carefully matched, therefore the competition was a most unusually close one. They stood, as a class, a perfect triumph of poultry breeding. The *White Dorkings* were as fully worthy of our highest approval. The improvements attained by careful management seem more striking in this variety than in most others of our domestic poultry, and this breed is becoming daily more generally sought after by agriculturists. A few years back *White Dorkings* were commonly reputed as difficult to raise, being tender to rear as chickens, and a long time before attaining sufficient maturity for the table. This, however, proved undoubtedly to be a misconception altogether; for *White Dorkings*, if enjoying a good run, are very excellent layers, commencing early in the season. The chickens grow quickly, and, with moderate attention, are always in good condition for the table. The quality of the flesh is likewise excellent, and the general appearance of the birds when plucked is delicate and prepossessing. With such truly superior qualities it is hardly to be wondered that they have many admirers. The purity of plumage of a goodly number of these useful birds, when collected near a homestead, few persons could appreciate who have not seen them thus situated. Their general appearance will always add much to their popularity, and we anticipate the coming winter Shows will abound with excellent specimens. The attention paid to this valuable breed during the last few years has also wonderfully increased the size of the specimens exhibited, and there appears every probability of even further improvement. Most of our Shows of late have retrograded as to *Polands*; but the Show at Weston-super-Mare was undoubtedly a very first-class one for

both Silver-spangled and also the Black with White Crests. We do not wish for better; and it is most gratifying to us to note this improvement, as Polands are unquestionably both useful and ornamental. In Buff *Cochin-China* fowls, Mrs. Fookes took all the premiums, the pullets exhibited by this lady being unusually excellent. For the prizes allotted to *Cochins* of any other colour the competition was most severe, the Rev. G. F. Hodson standing first, closely run by the birds of Mrs. Fookes. The *Game* class for "Black-breasted and other Reds" was one of the best we have seen, for chickens only, at any period of this year. There was not a pen that did not possess great merit. Mr. Williams, of Weston-super-Mare, obtained the coveted position of heading the list with a pen that will stand highly in any competition; whilst the second prize, belonging to Mr. Fox, of Devizes, were but little inferior. A better class than this was throughout need not be desired; but, certainly, many of the cockerels should long since have been "dubbed," or at the closely approaching winter Shows they will lose all chances of prize taking. This remark naturally bears with equal force in the *Game Bantam* class, the majority of which were shown uncut. We mention it thus early, simply because it is well known that dubbing causes a lack of condition for some short time afterwards, even to the most robust of cockerels; and at this advanced season there certainly remains no time to be wasted, if such fowls are intended for future exhibition. The Duckwings of the Rev. G. S. Cruwys were a most promising pen, leaving all competitors far in the rear. The Silver-spangled *Hamburghs* were good; but, undoubtedly, one of the very best classes in the Exhibition was the Silver-pencilled. Mr. Keable's, of Rowdefield, cannot be spoken of too highly. It would, indeed, be an extremely difficult task for the most critical to point out any imperfection. The class for any other variety held the best pens of *Malays*, *Brahmas*, and *Silky* fowls that could be desired. In Sebrights, the Golden were a much better class than the Silver-laced, Messrs. Bayley and Hodson running each other very closely.

As we anticipated, the *Game Bantam* class was most excellent, the winners at the recent Crystal Palace Show adding still another laurel to their popularity. Many of the specimens throughout this class were perfection, individually considered; but lost position from being penned with fowls of different feather.

In Aylesbury *Ducklings* Mrs. Seamons was unrivalled. The extraordinary condition in which this lady always exhibits these birds betokens the best of management; and how such excellence is undeviatingly maintained seems to puzzle other breeders. In Rouens we do not ever remember to have seen four Ducks so true to feather, colour of bills, &c., as those exhibited in the two prize pens. They possessed also great size—a requisite never to be lost sight of by Rouen breeders.

Of *Goslings* and *Turkeys* we need say but little, they bore convincing proofs of the greatest care and attention; and even yet, between this and Christmas tide, they will no doubt greatly improve, and then form most useful additions to the festive board.

The speedy manner in which all the poultry were repacked at the close of the Show is worthy of especial remark, and will be a feature that will add greatly to the confidence of exhibitors at future Meetings of the Wroughton and West Mendip Society's gatherings. This favourable result is entirely due to the unceasing personal superintendence of the Rev. G. F. Hodson.

Mr. Edward Hewitt, of Spark Brook, Birmingham, officiated as Judge. His awards were published by us last week.

HACKLE OF SILVER-SPANGLED HAMBURGHES.

IN THE COTTAGE GARDENER for September 27th, I noticed a remark that Silver-spangled *Hamburghs* should have striped hackles and white tails.

Now, I believe that the three breeds of Silver Pheasant Fowls, —namely, the Silver Mooney, the Creole, and the Yorkshire Silver Pheasant fowl, are the varieties usually known as Silver-spangled *Hamburgh*; I am, therefore, at a loss to know where the person making reply gets his theory from. Striped hackles and white tails do not naturally agree, nor are they to be found combined in any one of these breeds. It only exists in theory, but is not obtainable in practice. On the contrary, the striped hackle belongs to the Moonies, Golden and Silver, and these should have black, or nearly black, tails. See the old rules.

The white tails with black tips belong to the Creoles, and these have clear white hackles. See the old rules for Creoles.

Yorkshire Pheasant Fowls are marked very much like bad Sebrights.

All the so-called Silver-spangled *Hamburghs* exhibited at the Crystal Palace Show had nearly white tails with black tips, and, as a natural consequence, their hackles were all white, with only a slight spangling on the lower part, and not striped.

I am induced to make this remark because your correspondent puts forth such an unnatural and impossible theory, of combining striped hackles with clear tails—in practice only producing disappointment.—B. P. BRENT.

BEE-KEEPING IN ITALY.

SOME of your readers may be interested, and perhaps instructed, by the following extract from a recent account of the Italian valleys of the Pennine Alps, by the Rev. S. W. King, evidently not only a scientific naturalist, but a practised apiarian. In that locality I have little doubt the bees are of the *Ligurian* race, now endeavoured to be introduced into this country. It is to be regretted that the author did not enter rather more at large into particulars as to the mode of management, which combines simplicity and economy. The "skeps" alluded to are doubtless of straw, but it would be desirable to know in what way they are protected from the weather. Also, we are not informed respecting the swarms, and what becomes of them, as there is reason to believe these are annually sacrificed for their honey, leaving the old hives, which, of course, would contain only young queens for future stocks. The method of smoking the bees with old refuse combs requires some explanation.

"At Vanzone, the little capital of Val Anzasca," the author says, "the curate, Padre Albesini, walked up the valley with us as far as his house, and at his cordial invitation we went in to taste some of the honey for which he was famous, and to see his hives. I was delighted to find him an enthusiast in apiarian matters, and had collected a complete library of books on the subject. We discussed the merits of the old Roman, the Greek, Sicilian, and all kinds of modern hives, depriving, smoking, &c. He had in different places between seventy and eighty hives, and I was greatly taken with the simplicity and success of his management. On the flat tops of the skeps, which were of good size, was a box of inch-deal, a foot square, and four or five inches deep, fastened down, and luted with cowdung. A little window in front was covered with a slip of deal, and, the top being moveable, when the box was full the comb was removed with the aid of a little smoke. For this purpose he used the refuse left on boiling the old comb for wax, the smoke of which is not only harmless to the bees, but pleasant to use; and in so large a stock is always at hand, costing nothing. In the winter the box was removed, and the aperture stopped and luted. The average produce per hive, good and bad together, was about 10 lbs. in a fair season, and often much more. The bees were left in undisturbed possession, and never fed. I inquired how he managed when the combs became old and thickened, and found he practised the English method of annually cutting out a portion."—AN OLD APIARIAN.

OUR LETTER BOX.

SILVER-PENCILLED HAMBURGH PULLET (*D. B. Binney*).—There is no doubt about the cause of her death—the rupture of a blood-vessel on the brain. The bird possesses all the desirable characteristics of the breed.

DUBBING GAME BANTAMS (*W. Wilson*).—The ear-lobes should be removed, as well as everything that interferes with the snake-like appearance of head, which is desirable in these birds. Very sharp scissors is the best instrument to use, and every morsel of superfluous flesh and skin should be removed. The wounds are more serious in appearance than in reality; and the initiated always cut the comb in small pieces and give it to the bird to eat, which he always does.

GENERAL MANAGEMENT OF BEES (*Yorkshireman*).—Your communication embraces such a wide range of questions respecting bees, hives, feeding, aspects, &c., that our recommendation is, as a novice in apiarian practice, you resort to some work expressly on the subject. To go fully into the matters on which you desire the needful information would almost require a book to be written, and of these we already possess many. There is not a single question in your letter that is not fully discussed in Mr. Taylor's "Bee-keeper's Manual," published by Groombridge & Sons, Paternoster Row.

PURCHASING BEES (*P. P. P.*).—Bees may be removed at any season of the year, removing them always at night; but they should be brought from a distance, or they are apt to return to their former place, and thus many will perish. We prefer buying in the spring, sending the hives to the seller, and having early swarms hived into them. If cheapness is an object, Payne's Cottager's Hive may be used; if a higher price can be afforded, Taylor's Bar-Hive. You can select for yourself if you go to Messrs. Neighbour in Holborn. Buy our "Bee-keeping for the Many," and Taylor's "Bee-keeper's Manual."

WEEKLY CALENDAR.

Day of Mnth Week.	Day of Week.	OCTOBER 25—31, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
25	Tu	<i>Oxalis macrostylis</i> .	30.205—30.197	59—36	N.E.	—	43 af 6	46 af 4	6 6	29	15 47	298
26	W	<i>Oxalis pectinata</i> .	30.268—30.221	60—35	N.E.	—	44 6	44 4	sets	1	15 54	299
27	Th	<i>Oxalis purpurea</i> .	30.245—30.122	58—37	N.W.	—	46 6	42 4	46 a 4	1	15 59	300
28	F	ST. SIMON AND ST. JUDE.	30.056—29.951	54—34	S.W.	.24	48 6	40 4	21 5	2	16 4	301
29	S	<i>Passiflora corulea</i> , &c.	30.258—29.951	50—26	N.W.	—	50 6	38 4	9 6	3	16 9	302
30	SUN	19 SUNDAY AFTER TRINITY.	30.536—30.341	53—27	N.E.	—	51 6	36 4	7 7	4	16 12	303
31	M	<i>Roella spicata</i> .	30.529—30.430	44—24	N.E.	—	53 6	35 4	16 8	5	16 15	304

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 51.6° and 37.7°, respectively. The greatest heat, 67°, occurred on the 31st, in 1854; and the lowest cold, 23°, on the 26th, in 1850. During the period 107 days were fine, and on 117 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

As fresh air is indispensable for the health of plants, and as fogs occur about this time, it is essential to apply a little fire-heat during the day, to expel damps, and to cause a desirable activity in the circulation of the air. Attend to cleanliness, picking off dead leaves, and the destruction of insects.

BULBS.—Pot Hyacinths, Narcissi, Tulips, &c., to flower late in the spring; also the *Ixiæ* and *Gladioli*, and various other *Irideæ*; and also *Oxalis*, *Lachenalia*, &c. They delight in light open soil composed of peat, loam, and sand, and rotten leaf mould as an addition to, or substitute for, the peat.

CINERARIAS.—Give the final shift to the plants intended to flower as specimens in early spring.

CHRYSANTHEMUMS to be treated with manure water occasionally. All suckers and spindly shoots to be removed, and the flowers to be thinned.

PELARGONIUMS.—A little fire-heat by day, with plenty of air, will be of service to drive off the damp and stagnant atmosphere caused by the late heavy rains. Watering, if necessary, to be given in the morning; the principal shoots to be tied into a regular form, and the weakly and useless ones removed; to be placed near the glass, to encourage a sturdy, short-jointed growth. Two ounces of the Gishurst compound, dissolved in one gallon of soft water, will speedily banish the green fly.

FORCING-HOUSES.

CUCUMBERS.—Keep them tied in as they grow; stop the side-shoots at the second joint; allow the leader to grow to the required length before stopping it; and pinch off the young fruit if you think they are not sufficiently strong to carry a crop.

PEACHES.—Prune and dress the trees as soon as they lose their leaves. If the lights are still off any of the early houses the sooner they are put on the better. An abundance of air to be given.

PINES.—The temperature of the fruit-swelling plants to range from 60° to 65° at night, with an increase during the day in accordance with the state of the weather, whether bright and sunny, or rainy, foggy, or frosty; and the succession plants a few degrees less. Humidity to be considerably reduced, as it tends at this season to produce weak and immature growth. The bark-beds of strong succession plants that are required to start into fruit early, to be renewed by having a small quantity added to the surface of the bed. Pits heated by dung will require covering with mats at night: when covered let every other light be slightly raised, to allow the steam to pass off. When the covering is off it will escape through the laps of the glass. Take advantage of all opportunities for giving a little air. If it can be done every day, so much the better for the health of the plants.

VINES.—The Vines in late houses that will not require to be pruned for some time should have the tops or other portions of the immature wood cut off, to give strength

and plumpness to the back eyes. Whoever has availed himself of the instructions given on the 4th inst. to cover his Vine borders with Fern, or any other such like material, will congratulate himself for having done so; for, after the quantity of rain that has fallen during the last three weeks, the borders without covering, and if imperfectly drained also, will be in a very unhealthy state. If the houses are dry, kept free from drip, and the scissors employed amongst decaying berries, the fruit that now remains will be in a good condition for holding out for a long time.

WILLIAM KEANE.

WINTERING BEDDING PLANTS.

THE great body of the people want to keep over the winter only such plants as Scarlet Geraniums, Fuchsias, and perhaps a few *Calceolarias*; but the great need is for the safe keeping of Scarlet Geraniums only, and there are fifty ways of doing it, every one of which is the best for some one, though it might be all but the worst plan for those at the other end of the list.

The Cape Scarlet (*Inquinans*) was much later of introduction than the Horseshoe-leaf kind; and on its first coming it was found to be twice as tender as the "Old Scarlet," or Horseshoe-leaf, and so it is to this day, if we could come at that old Scarlet for comparison, but we cannot, for it was lost years ago. All that we have of it now is the sported seedling which is mentioned in Miller's "Dictionary" as one of four different kinds which existed in his time from seedlings of the old stock plant, and that one is a variegated plant with a crimson stellate, or star-like, flower; and even in its variegated form it is twice as hardy, and can bear twice the hardships and hard frosts *Tom Thumb* can, the best known of the breed of *Inquinans*.

It would be an unprofitable speculation to try to find out if there is a man or woman alive now who had ever seen the original Horseshoe-leaf—the *Zonale* of Linnæus. By the way, too much learning drives some people mad, and too much dog Latin seems the next degree in driving people daft; for some of our nurserymen make a new section of Geraniums in their catalogues, called the *Zonale* section; and if that be not daft and dog Latin compounded, there is no strength in botany. When a botanist finds occasion to express a meaning that was never known, or intended by the Romans, he has to make a new Latin word the nearest he can think of to the true word. The Romans had no Horseshoe Geraniums, nor a word to express such a mark nearer to it than *zona*, a ring or zone; and *zonale* is a dog Latin word which was made by some botanist to cover our ring or mark in the Horseshoe-leaf, and means exactly the same thing as the Latin *zona* and our English "horseshoe," mark, or ring, or zone in the leaves. A section of *Zonales* was not wanted, therefore, as long as we had the better word "horseshoe" for the same meaning.

Not only are *Zonales* the oldest of all the sections of the family and race, but working from the original *Zonale* gives us a hardier breed to keep over the winter.

But all Horseshoes are not equally hardy: none but those which claim affinity to one or other of the "accidental seedlings" from the original, mentioned by Miller, is one whit hardier than the Cape Scarlet was, or its representatives are at the present day. The pollen carries the leaf in all the sections of the Scarlet Geranium without a lapse in a thousand crosses. Cross *Tom Thumb* with the pollen of any Horseshoe kind, and all the seedlings from *Tom* will be horseshoed; but cross *Baron Hugel*—the best marked Horseshoe we have—with the pollen of *Tom Thumb*, and the seedlings come nearly plain-leaved at the first turn of the cross, and completely so in a second generation; so that the horseshoe mark is not the cause of the hardiness, and never was. The constitution of the first Horseshoe Geranium happened to be so much more hardy than the constitution of the original plain-leaved kind, owing to some peculiarity of soil and climate, and that was all; and if the two kinds had been kept separate in their generations each kind would have thrown the greater number of its seedlings after its own hardihood, and we should have been sure that Horseshoe kinds would be easier to keep than plain-leaved kinds.

The way I am now preparing to winter my own stock of about three thousand seedling Geraniums is a new way, founded on the best examples of my old practice. I have often told of the five thousand *Punches* which I used to strike in a turf-pit, and keep there without removing the whole winter, at Shrubland Park; that was the best, the simplest, and the cheapest way I ever tried, or saw done, and I had the plan put in motion at the Experimental Garden every winter for the last five years, where it is also found to be the easiest and the cheapest.

There is a long range of a cold pit in which one and two-year-old plants are wintered without pots; every leaf is cut off, but not a fresh wound left in the shoots. All that is cut out is done a long time before they are planted for wintering. The bed under them is not quite three inches deep, and below that is a hard crust. In that thin bed all the roots are just covered, and no more. The whole, when finished, get one good watering from a rose, and seldom any more till the month of March. The lights are off every dry and fine day, and in frost the glass is covered with a single run of mats, and Ferns put over them, and they seldom lose two out of a hundred there. My new way is in front of my White Grapes, and, as luck would have it, I never said aught about them; they will be under glass in future, from the wintering of the Geraniums to the planting-out period, and without glass all the summer. The wall has my favourite west aspect—the best aspect in winter for man and beast, and for all half-hardy plants in our climate. The wall border for the Grapes is not much over four feet wide; but it is a raised border with a brick edging between it and the path, the soil being level with the top of the bricks; a one-inch-thick deal, nine inches deep, in the rough—that is, not planed, but pitched or tarred—runs on the top of the brick edging, for the "front wall;" and the wall for the Grapes is my back wall; the lights are hooked on to the back wall, and rest on the nine-inch board, with a handle at the bottom of each. Each light is fixed, as it were, at two inches from the next to it, on Sir Joseph Paxton's plan of ventilating his new, cheap houses, and there is a coping of half-inch deal to shut up the opening in rainy and frosty weather, but not for an hour at other times; two inches of constant ventilation day and night at each interval between light and light, and no cold current after all. This way of ventilating does away with currents of air altogether.

The way the lights are hooked to the wall is by hook-and-eye—a hook screwed to each top corner of the light, and the eyes are fixed in a rail of two inches wide and an inch and a half in thickness, which is fastened to the wall with screws and plugs; a plug of wood let into the wall here and there, and the rail screwed to the plugs, so that the whole may be removed in May, and the Vines let

up to be trained and trimmed as before. There is a little bit of coping over the rail and ends of the lights, and the ventilators' copings, between the lights, fasten by one end in a groove in the back rail, and the other end dropping on a wooden pin, which fits a hole at the end of a cap. Nothing could be more simple, more safe, or more economical, under the circumstances. One can keep out the hardest frost we ever had by covering, and that is all my force, and all the better; for the border is alive with Cyclamens and half-hardy bulbs, and the Geraniums are stripped of every leaf, and planted out of the pots, and as close together as they will stand. Some few of my best breeders are planted out "for good," at the proper distances, and then the spaces between them are filled in with younger or smaller plants. Of course I shall have no watering to do to them for the next three or four months; all they will need is a look over now and then, to look after damp spots or decayed leaves, after the new ones come. When there is a run of fine days, or a fall of mild coming rain, all the lights can be unhooked faster than giving them air on the common cold-pit system, and there is not one-tenth of the wear and tear as in common frames and pits.

Now, with glass-lights at hand, that is the cheapest way to keep Calceolarias, Verbenas, and all kinds of bedding Geraniums in the winter. A temporary pit, so made, across the end of a dwelling-house opposite a fireplace, would keep warm enough, if the pit were six or eight feet wide, and as long as from corner to corner of that end of the house. My job is not quite finished yet; it is in the hands of our first hothouse builder in Kingston, as I always maintained that the cheapest way, in the long run, is to go to the first man in the line one is on. The first inns in all the great towns, in the time of the coach-and-four, were always the best; and where are better than the railway hotels of the present time?

My border pit is only yet partly planted, the oldest and tallest plants at the back; the rest according to their sizes will follow; the minimums and younger seedlings will occupy the front rows. The minimums which I first mentioned from the Crystal Palace, consist of occasional sports from seedlings; they are the dwarfiest of the race, or the *smallest*, as the word minimum denotes.

That old variegated Geranium *Dandy*, is still the favourite minimum at the Crystal Palace, where it is used, plant for plant, with the small blue Lobelias, which make charming pincushion-beds; but we shall soon have a sufficient number of minimums to allow of whole beds being made of them, of different colours, and for edging beds of other colours. The ladies have taken to them at first sight, and they are then sure to prosper and become fashionable. There are plain-leaved and Horseshoe-leaved minimums, but, as yet, *Dandy* is the only variegated. If *Harkaway* would sport into a variegated form, it would be certainly a minimum, as all these variegated sports come so much more dwarf than the parent kind. *Dandy* never blooms, or blooms but very seldom indeed, and the bloom is in the shape of a star—a stellate; but most of the new minimums flower as freely as *Tom Thumb*, and there is no gauge for their flowers. They may be of the common forms, as those of *Tom Thumb*, *Punch*, and *Cerise Unique*; of *Compactum* shape, as those of *Frost's Old Compactum* with globular trusses; or *Nosegay* shape, having the three front petals wide apart from the two back ones; or, like *Dandy*, having a star-like shape, and very narrow or very broad petals. So that these minimums include the flowers of all the other sections indiscriminately, and leave but one more section to be described. That section is also rather new, with the trusses as large as those of *Punch*, *Compactum*, or *Cerise Unique*, and of all the shades of colours. Like them, the back and front petals are all of the same size, thus differing from all the rest, or old ones, and their shape is star-like, after which they are named Stellates or Stellatums. *Stella* is the name by which the first of these fashionably-

shaped flowers is to be ushered into the flower garden next spring.

Our bedding Geraniums are now thus classed by the ladies—common, as *Tom Thumb*; compact, as *Compactum*; nosegay, as *Fothergillii*; stellate, as *Stella*; and minimum, as *Dandy*; and, as far as we know, these descriptive names will cover any seedling or any sport which is likely to appear in our day, unless it is a *Polyastrum*. *Fothergillii* comes sometimes a *Polyaster*, as Mr. Eyles informed me this autumn at the Crystal Palace, which means that secondary trusses, or many stars come from one head or truss from among the flowers of the first truss. I had a most singular instance of this kind of sport this season. One truss, with sixty or seventy flowers in it, pushed up nineteen other secondary trusses from the first truss. The whole were hard upon 200 flowers on one footstalk, as near as I could count. I thought of drying off the specimen for the Museum at Kew, but could not, and save seeds from it. Seeds of it I did save, but not many, and the flowers were so crowded that the rains destroyed more than the half of them before I could get a seed. If this old freak, in its new extension, should become hereditary, which I hardly expect, we must have one more section to include all such. Neither the Pomological Commissioner, nor Mr. Henderson, nor others who have seen mine, among whom is a diligent observer, Mr. Fish, gardener to Lady Cullum, Hardwick, in Suffolk, had never seen the like, save one or two additional to the truss of the original Nosegay, *Fothergillii*.

The one extreme of keeping any and all of these sections during the winter, I take to be my own planting-out system, in a border-pit just described. The other end is, that by which two or three *Tom Thumbs* are saved by him of not so much as a square of glass, save in his windows. His plan is to give "suction" the long lone winter, but no leaves or light. How he does it is this—he takes up his border Geraniums and cuts off all their leaves; he then lets them dry awhile in the tool-shed; after that he takes them in of an evening, and ties three or four of them together just up above the collar of the plants, or say three or four inches up from the roots. The roots he manages to get round and round into a kind of long ball; but he mixes a little moss with the roundings, and covers the whole with moss in a dry state, and with pack thread he makes it tight enough for anything; and, last of all, he puts the moss ball in a pail of warm foot-water, which was used for the bairns before they were put to bed, and leaves it there till the morrow, to make up for the previous week's drying in the shed. In the morning he wrings most of the water from the moss, and ties the ball as tight as wax, in a piece of an old red leather apron, the cast-off of the under-butler at the "Hall;" then the plants and ball are rolled into another piece of old green baize, part of the lining of a plate-closet at the same Hall, and both ends are tied, and the top of the plants' end is hung up on a nail, where no frost ever yet could reach. How often he looked at them that winter I really cannot say, as I had only the first part of his plan before my eye; but I heard in the spring that nothing could be more successful.

The plan was carried out in Suffolk; and I had almost forgotten it till the other day, when Mr. Wells, my old foreman of the pleasure-grounds there, came up to London and down to see me, and wondered how I could winter so many plants, when the moss-belling system was brought up in our mind's eye. He is a natural genius, and invented a transplanting machine, which I cannot make out without drawings, but which will move a Portugal Laurel with a ton of earth, in midsummer, by the working of three men; and a pump for liquid manure, to raise more gallons per minute than I can recollect just now. He also made his own pits for Melons and Cucumbers, and for keeping Geraniums by one and the same fire, with extended flues. He is gardener to a

clergyman, who has one of the most conscientious gardeners in the kingdom; but his time was too short for me to get out of him one-half of his ideas of keeping plants over winter under difficulties. The worst plan, he says, is to put pots and plants, which stood out of doors a long while, up all at once into an upper-room in a house with only a window to air them, unless they are looked over every other day. He says they are sure to damp before the weather is dry enough, by frost, to save them. He says, and I agree with that, the best way for plants in the upper-rooms, if they are merely to be kept alive till the "season comes round," is that on the suction system of keeping the roots between wet and dry, and the tops in a freely-ventilated room, and the best and simplest way to do that by means of shallow boxes—say, not over six inches deep, nor over a foot wide; but as long as one can carry, or as long as you please, then out of beds, or out of pots, is all the same; but if in pots, to have the balls shaken off first, then all the leaves removed without making wounds, to plant them in dry, sandy earth, to shake the box earnestly after the planting, so as to cast the dry soil in among the roots thoroughly—all this to be done in an outhouse or shed, and then to put the box in the open air, and to water it as if it were midsummer-day; also, to leave it out for several days to drain well, or, if it be frost-like, to get it back into the shed; and so not to put it up stairs till the mould is half dried. A little moss, bran, or sawdust, is a good thing to put on the top of such boxes, to allow of the room being thoroughly ventilated without drying up the moisture in the boxes too rapidly, and then they seldom require more water till after the new year. But it is from the middle or end of January that the great bulk die from sheer dryness for want of water. The boxes, however, should be looked over occasionally all the time, and any dark speck cut clean out, or black top, or mouldy end, or change from side to side from the appearance of the first leaf, in short:—to let it never be forgotten that they are there, and that they will no more do without looking after than the stock on the farm.

A clergyman told me the best place he had ever seen for keeping scarlet Geraniums was a particular cellar—one out of a thousand. It was neither wet nor dry, cold nor warm; and all there was to do was to tie bundles of them together with all their leaves on, and hang them up against the walls, with the roots upwards. The leaves would dry, into hay as it were, very gradually, and many of them would hang on all the winter. It struck me at the time, that leaving the most of the leaves on a few plants and hanging them up thus, would be the surest test one could try to prove a cellar for the purpose. In nine cellars out of ten, the first thing that would happen would be to see the green leaves turn mouldy, and where one leaf gets the mould that cellar is certain to kill the Geraniums in winter, and dry cure them in the spring.

My cellar is from 48° to 50°, be it a mild or a severe winter, and in ten days the most sleepy of all the Geraniums would be up and doing in it; but as to anything moulding in it, nothing will; so there are the two extremes. If I should ventilate the cellar, as I could do, to keep Geraniums, it would cool the house so as to consume three times the expense of glass and mats. There are famous cellars for the purpose under many of the houses and castles in the country; but there is no need to buy the experiments. Where churches are heated by hot water, many good opportunities occur for storing up Geraniums for winter; but, in general, I have a horror of ordinary cellars for this purpose, and I would choose the top of a house anywhere till I made quite certain of the cellar by experiments on a small scale.

But of all the ways of wintering these Geraniums, the most up-hill work is when the slightest frost gets hold of them in the beds. Once nipped, the only safe course is to cut them right down to the old hard wood, and to let the wounds be quite dried up before they are stored, then

less moisture at the roots for them, and the oldest plants keep best, because there is more substance in them to hold out the longer against accidents of all kinds. These old stumps will hold on safe enough till Christmas in any dry room, and among Fern or straw; but longer it is not so safe to leave them so, as to box their roots just as in the autumn, and to watch over them to see that no mouldiness gets on them. There is more danger with them in a mild spring than during a hard winter, as, if they once begin to grow, and the place is dark, or the roots very dry, they will soon exhaust themselves, when one might think they were the most prosperous.

D. BEATON.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(Continued from page 35.)

HAVING in preceding chapters detailed the particulars of the garden management and culture, we now come to the more important feature of the present work—that of making the great bulk of the two-acre plot as productive as possible, and with such crops as will be of service in the keeping of a cow and one or more pigs. To accomplish this there is no better plan of making our description well understood than by dividing the plot into a certain number of portions for the respective crops to be put upon it. Our present remarks being for the cropping and management of the

STIFF LAND FARM.

DIVISION OF THE GROUND.

There being 260 rods to work upon, it would be prudent to lay a part of this down to permanent Grass. For this purpose I would advise 60 rods; and if this section could be contrived to be in one corner of the plot, it would have the advantage of a permanent fence on two sides. The other sides I would advise to be divided by a wire fence from the ground in tillage, as it will be advisable to turn the cow in this grass plot at times to prevent that stiffness arising from continued confinement. It would also be advisable to secure water in this plot if it could be so managed: and if the ground does not possess a suitable piece of natural grass at the place wanted, it will be prudent to make one by sowing a suitable mixture of Grass seeds along with the corn crop of the preceding year (which see further on). It being understood here that the section intended for Grass occupies sixty rods of ground.

PREPARATORY TREATMENT.

Assuming the ground to have been in careless hands previously, and to have been only very slightly ploughed, it would be advisable after draining, as previously stated, to have it all what is called “bastard-trenched”—that is, the top spit being retained at the top, and the bottom spit turned over and broken in its place, as described for garden culture. This work, if done when the ground is moist—say winter—will cost from 6d. to 9d. per rod, or from £4 to £6 per acre. The earlier this is done the better, so as to have as much of the winter to mellow in as possible. It would certainly be advisable to go over the whole piece this way; taking care, however, to keep the best soil at the top, and adding what dung can be spared to it at the same time—especially let the part intended for permanent Grass have some lime, mortar rubbish, or other material, to keep the bottom from subsiding again into a stiff impenetrable mass. The other portion of the ground may also have as much manure as can well be afforded; from thirty to forty one-horse cartloads per acre not being too much of farm-yard manure. The quantity may be increased if the material is less rich and nutritious; taking care, however, to keep all dung near the surface, except where Carrots are grown, which on clayey ground are seldom attempted

and not here advised. The ground being trenched early in winter, we are now ready for the first crop.

CROP OF THE FIRST YEAR.

If the staple product of the neighbourhood is Wheat, sow this crop, if it will answer sown in the spring; but if not, sow Barley. In many places of the South of England Barley answers well on stiff heavy ground better than on light soils; and as Barley will be useful in the pig-feeding way, and is always when good a saleable corn, it might with advantage be sown. Beans do best of all on stiff soils; but the Clover and Grass seeds, which I purpose sowing at the same time, do not answer so well with Beans: and these after-crops, being really of more consequence than the corn crop, ought to have every advantage. Early in March I would therefore sow 180 rods of ground with Barley, Wheat, or Oats; and along with that corn I would sow to the extent of 60 rods with a mixture of permanent Grass seeds and white Clover; and about the first week in May sow the remaining 120 rods with red Clover amongst the corn mentioned above: this will give 180 rods in crop out of the 260 in all. Of the remaining 80 rods one-half may be sown with Mangold Wurtzel the third week in April, and 20 rods planted with Potatoes for the use of the family early in March. The other twenty rods may be sown with Swede Turnips early in May. Thus the first year's crop for the stiff-land farm will be thus:—

120 rods Wheat or Barley, with red Clover sown to follow.
60 ” ” ” ” with permanent Grass to do.
40 with Mangold Wurtzel.
20 with Potatoes.
20 with Swede Turnips.

MANAGEMENT OF THE CROPS.

Supposing the ground to be pretty clear at the time of sowing, the corn crop will want but little attention beyond rolling early in May, when the Clover seed is sown, and cutting when it is ripe. If the Clover do well it will be a considerable height by the time of harvest; and the Barley, if mown, will contain a good deal of Clover, and make not bad fodder for a cow when not in milk in winter. Of course, the thrashing out of the corn must be done somewhere for hire; but reserve the straw and offal for the pigs, and keep a portion of the Barley also to fatten off a couple of bacon hogs, (which see hereafter). The Mangold Wurtzel to be sown in drills two feet apart, and thinned to plants from eight inches to a foot apart in the row. Swedes may be a little closer in the row, but the same distance from row to row. Hoeing and keeping down the weeds amongst these crops must be carefully attended to. The Potatoes to be planted early in March in rows over rather than under two feet apart, and about a foot from plant to plant; hoeing and earthing up at the proper opportunity being duly attended to.

GREEN CROPS OF THE SECOND YEAR.

The portion that had been sown with Clover will require little attention during the winter, neither will that of the permanent Grass; but if the latter had now and then a dose of liquid manure from the cesspool (to be described hereafter), it would greatly improve it; but neither of the crops will require any dressing with solid manures. The Clover being intended to be cut for the cow, it may be commenced with as soon as a suckler or head is seen, or even before that, only cutting as much each day as is wanted during that time: but the Grass must not on any account be allowed to get long, for that spoils the bottom. It is better, therefore, to mow it as short-lawn Grass for a time until later on in the summer, when the cow may be turned out upon it in dry weather. It ought to be mentioned here that both this and the Clover ground ought to have a good rolling early in the spring, having previously gathered off all the stones from the surface: this rolling smoothes the inequalities, and makes

it better for using the scythe afterwards. The Clover, if good, will bear three cuttings; and it may possibly happen that the cow may not be able to consume it all at the most growing period. If, therefore, any be likely to get too old, cut it, and make hay of it—it will be useful hereafter; observing that in making clover-hay it ought not to be moved much, as that shakes off all the leaves; but let it lie in the swathe for several days, then turn it some fine morning carefully, and carry it in the afternoon. Of course some judgment is necessary as well, which can only be learned by seeing the hay in the proper condition.

TILLAGE CROPS OF THE SECOND YEAR.

The 80 rods in Potatoes, Mangold, and Swedes will be again in tillage, and about 20 or more rods may be Potatoes again, planting them where the Mangold had previously been; and if the ground be well pulverised and fine, some *White Belgian* Carrots might be sown where the Potatoes were; and a portion of *Mazagan* or *Long Pod* Beans may also be planted, leaving about 20 rods for some other crop, which, at the discretion of the grower and the custom of the neighbourhood, may seem best for him to plant. He may, if he choose, have Mangold Wurtzel again, as it will be a useful article in winter for the cow. All these crops, except, perhaps, the Beans, will require manure again; and if they be planted in equal proportions, the crop of the second year will be thus:—

120 rods Clover, which may be cut thrice.

60 „ Permanent Grass, to be cut short once or twice, afterwards fed of, and not by any means to be made into hay.

20 „ in Potatoes where Mangold had previously grown.

20 „ Carrots (white) where Potatoes had grown.

20 „ Mangold where Swedes had grown.

20 „ Beans where Mangold had grown.

One or more of these crops might be altered as the taste of the occupant directs. A certain amount of tillage is wanted every year; and as *Drumhead* Cabbages, though excellent food, flavour the milk, I cannot recommend them for milch cows. I have also advised this second year to resemble the first in many respects, as I purpose to let the Red Clover lie two years. This is not the general practice of farmers; but as this crop does not answer being on the same ground again more than once in six or eight years, and being our most useful soiling crop, it must be made as durable as it can. It will therefore be understood as having to stand over another year; and therefore all thistles, docks, or other perennial weeds amongst it ought to be removed; and in the early spring a good dressing of some fine compost will be of service, and any gaps filled up by sowing a few seeds of *Trifolium incarnatum*.

J. ROBSON.

(To be continued.)

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 42.)

ASTRAGALUS—MILK VETCH.

Nat. ord. Fabaceæ. Linn. Diadelphia Decandria.

GENERIC CHARACTER.—Calyx five-toothed. Keel blunt. Legume two-celled; lower suture turned inwards.

ASTRAGALUS ADSURGENS (arising). Plant ascending, smoothish; leaflets lanceolate-acute; stipules acuminate, long as leaves; flower-spikes oblong, pedunculate, longer than leaves; vexillum longer than wings; legume oblong, terete, somewhat tetragonal, sulcate on back, erect, downy. 6 in. Purple. July. Siberia.

A. ADUNCUS (hooked). Plant diffuse, hoary; leaflets elliptic, small; spikes short, but longer than leaves, pedunculate; vexillum much longer than wings; legume ovate-oblong, rather villous, ending in long oblique point. 1 ft. Purple. July. Caucasus.

A. ALOPECUROIDES (fox-tail-like). Plant erect; leaflets ovate-lanceolate, downy; stipules ovate-lanceolate, acuminate; flower-spikes ovate-oblong, stalked; calyx segments setaceous,

shorter than tube, but long as corolla. 2 ft. Light yellow. July. Spain.

A. AMMODYTES (sand-viper). Plant prostrate, clothed with hoary down; stipules ovate, obtuse; leaflets ovate; flowers twin, axillary, rather radiant, peduncles short; calyx cylindrical, hairy. 6 in. White. July. Siberia. Evergreen shrub.

A. ARISTATUS (awned). Plant shrubby; peduncles very short, usually six-flowered; calyx teeth long, setaceous; leaflets oblong-linear, mucronate, pilose; legume hardly half bi-locular. 1 ft. Purple. July. Pyrenees. Trailer.

A. AUSTRIACUS (Austrian). Plant diffuse, procumbent; leaflets glabrous, linear, truncate emarginate; racemes pedunculate, longer than leaves; corolla wings bifid; legume rather triquetrous, pendulous. 6 in. Pale blue. July. Austria.

A. BAYONENSIS (Bayonne). Plant diffuse, procumbent, rather white-downed; stipules concrete, opposite leaves; peduncles four to six-flowered, long as leaves; legume nearly sessile, rather tumid, tomentose. 6 in. Purple. July. France.

A. BUCHTORMENSIS (Buchtorm's). Plant stemless, pubescence hoary; leaflets oblong; peduncles few-flowered, very short, declinate when in flower; calyx five-toothed; legume oblong-cylindrical, acuminate, callous, half bi-locular. 6 in. Yellow. Siberia.

A. CAPRINUS (goat-scented). Plant nearly stemless, erect, downy; leaflets ovate-oblong, ciliated; peduncles half length of leaves; flowers racemose, spreading; calyx segments subulate; corolla glabrous; legume ovate, inflated, stipitate, slightly pilose. 1 ft. Pale yellow. July. Barbary.

A. CAUCASICUS (Caucasian). Plant shrubby; flowers two or three together, axillary, sessile; calyx five-cleft, woolly; legume one-celled, four-seeded; leaflets oblong-linear, hoary-tomentose. 6 in. White. July. Caucasus. Evergreen.

A. DAHURICUS (Dahurian). Plant erect, pilose; stipules lanceolate-subulate; leaflets oblong, mucronate; racemes longer than leaves; legume erect, incurved, linear, compressed, rather pilose. 9 in. Purple. June. Dahuria.

A. DASYGLOTTIS (thick-tongued-leaved). Plant diffuse, nearly glabrous; stipules concrete, opposite the leaves; leaflets elliptic-oblong, somewhat emarginate; flower-spikes capitate; peduncles longer than leaves, bracts long as calyx-tube; calyx white-haired; legume erect, ovate-triquetrous, hairy, cells one-seeded. 4 in. Purple. July. Siberia.

A. DEPRESSUS (depressed). Plant almost stemless, or diffuse, hoary-pubescent; stipules ovate, membranous; leaflets obovate; peduncles shorter than leaves; legumes terete, depressed, straight, drooping, glabrous. 4 in. Pale yellow. July. Europe.

A. DONIANUS (Don's). Plant prostrate, scatteredly hairy; leaflets oval, alternate, mucronate, downy beneath, silky when young; stipules connate; peduncles axillary, few-flowered, twice as long as leaves; legumes subulate, silky. 6 in. Purple. July. Nepaul. Trailer.

A. EXSCAPUS (scapeless). Plant stemless, soft-haired; leaflets ovate; flowers nearly sessile, aggregate; calyx teeth subulate, long; corolla glabrous; legumes ovate, acuminate-mucronate, hairy, sessile, rather compressed. 6 in. Yellow. July. Hungary.

A. FRUTICOSUS (shrubby). Plant shrubby, erect; leaflets linear-lanceolate, acute; spikes capitate, few-flowered, pedunculate, longer than leaves; vexillum much longer than wings; legumes erect, oblong-lanceolate, villous, apiculated by style. 1½ ft. Violet. July. Siberia.

A. GRACILIS (slender). Plant erect, slender, downy; leaflets oblong-linear, remote; racemes pedunculate, longer than leaves; legumes very short, drooping, elliptic-ovate, rather triquetrous, downy, one-celled, usually four-seeded. 9 in. Purple. June. N. America.

A. HYPOGLOTTIS (tongue-under-tongue). Stems prostrate, rather hairy; stipules ovate, concrete; leaflets small, ovate, obtuse, dark green; flower-heads roundish, peduncles longer than leaves; bracts half length of calyx tube; hairs of calyxes and peduncles mixed black and white; legumes ovate, back deeply channelled, compressed, hairy, hooked at the point, cells one-seeded. 3 in. Purple. July. Britain.

A. INCANUS (hoary). Plant stemless, hoary; leaflets ovate; scapes hardly longer than leaves; spikes capitate; calyx teeth subulate, short; legumes almost cylindrical, hoary, incurved at point, which has a subulate mucrone, cells five or six-seeded. 6 in. Purple. July. Montpellier.

- A. INFLATUS** (inflated). Stem nearly erect, glabrous; *stipules* lanceolate; *leaflets* linear-lanceolate; *spikes* globose; *peduncles* longer than leaves; *calyx* inflated, tomentose; *legumes* ovate. 1 ft. Purple. July. Mendoza.
- A. LACTIFLORUS** (milk-flowered). Stem hairy; *leaflets* elliptic; *racemes* very short, axillary; *bracts* lanceolate-linear; *calyx* teeth lanceolate-linear, thrice as long as tube, but shorter than bracts; *corolla* glabrous; *legumes* ovate, rather triquetrous, mucronate, woolly, many-seeded. Striped. June. Siberia.
- A. LAXMANNI** (Laxman's). Plant erect or diffuse, smoothish; *leaflets* oblong-lanceolate; *spikes* pedunculate, oblong, longer than leaves; *vexillum* much longer than wings; *legumes* oblong, triangular, furrowed on back, mucronate. 1 ft. Purple. August. Siberia.
- A. LEONTINUS** (lion-tail). Plant diffuse, rather shrubby at base, hairy; *hairs* fixed by their centre; *stipules* concrete, but becoming free; *leaflets* ovate; *peduncles* triangular, longer than leaves; *legumes* ovate, villous. 2 in. Blue. July. Austria.
- A. LINEARIFOLIUS** (linear-leaved). Plant erect, downy; *leaflets* linear, acute; *racemes* much longer than leaves; *vexillum* broad, double length of wings. 6 in. Purple. July. Siberia.
- A. MACROCEPHALUS** (large-headed). Stem glabrous, erect; *leaflets* oblong-elliptic; *stipules* large, acuminate; *spikes* globose, pedunculate; *calyx* teeth subulate, long as tube, but shorter than corolla. 4 ft. Yellow. June. Caucasus.
- A. MAXIMUS** (greatest-fox-tail). Plant erect; *leaflets* lanceolate, downy; *stipules* oblong-lanceolate; *spike* sessile, cylindrical, nearly terminal; *calyx* teeth capillary, woolly, shorter than corolla. 3 ft. Yellow. June. America.
- A. MONSPESSULANUS** (Montpelier). Plant almost stemless; in dry exposed places hoary-pubescent; in moist places almost glabrous; *leaflets* ovate or lanceolate; *scapes* longer than leaves; *calyx* teeth long, subulate; *legumes* terete, subulate, slightly arched. 1 ft. Yellow. July. France. Evergreen trailer.
- A. ALBUS** (white). 1 ft. White. July. South of Europe. Evergreen trailer.
- A. ONOBRYCHIS** (purple-spiked). Plant diffuse or erect, downy; *leaflets* oblong; *spikes* oblong-ovate, pedunculate, longer than leaves; *vexillum* linear, double length of wings; *legumes* ovate, triquetrous, villous, erect, ending in a straight point, cells four-seeded. 1½ ft. Purple. July. Austria.
- A. OTOPTERIS** (entire-winged). Plant diffuse; *leaflets* linear, glabrous, entire, acutish; *racemes* pedunculate, more than twice length of leaves; *corolla* wings obtuse. 1 ft. Pale blue. July. Altai.
- A. PLATYPHYLLUS** (broad-leaved). 1 ft. Pale yellow. July. Siberia.
- A. PURPUREUS** (purple). Plant diffuse, procumbent, villous; *stipules* concrete, opposite leaves; *leaflets* obovate, bi-dentate at top; *spikes* capitate; *peduncles* longer than leaves; *legumes* erect, ovate-triquetrous, hairy; cells three-seeded. 3 in. Purple. July. S. of France.
- A. STELLA** (star-podded). Plant diffuse, procumbent, hoary; *stipules* lanceolate; *leaflets* elliptic-oblong; *peduncles* about length of leaves; *legumes* almost terete, furrowed on back, hairy, mucronate; cells five to ten-seeded. 6 in. Blue. July. S. of France.
- A. STIPULATUS** (large-stipuled). Plant erect, glabrous; *stipules* concrete, large, foliaceous; *leaflets* oval-oblong, or obovate-mucronate; *peduncles* length of leaves; *spikes* loose, at first erect, finally drooping; *legumes* compressed, stipitate, glabrous, drooping. 1 ft. Yellow. June. Nepaul.
- A. SUBULATUS** (awl-shaped). Plant diffuse, hoary; *leaflets* linear; *racemes* pedunculate, loose, longer than leaves; *lower flowers* remote; *legumes* subulate, triquetrous, rather arched, erectish, five times length of calyx. 9 in. Purple. July. Siberia.
- A. TAURICUS** (Taurian). Plant tufted, spreading, downy; *leaflets* linear, acute; *stipules* membranous, concrete, opposite the leaves; *peduncles* spicate, thrice length of leaves; *legumes* ovate, acute, two to four-seeded. 6 in. Purple. July. Tauria.
- A. VESICARIUS** (bladder-calyced). Plant diffuse, procumbent, hoary; *leaflets* elliptic; *peduncles* longer than leaves; *calyx* bladdery, with black down, and long white spreading hairs; *legumes* hairy, longer than calyx. 1 ft. Whitish-yellow. July. Europe. Trailer.
- A. VULPINUS** (fox). Stem erect, glabrous; *leaflets* obovate, obtuse, or emarginate, velvety; *spikes* nearly globose; *peduncles* short; *calyx* teeth setaceous, length of tube, shorter than corolla. 2 ft. Light-yellow. July. Caucasus.

The Milk Vetches are a pretty tribe of useful plants, many of them are evergreen trailers suitable to cover naked banks; though all of them will thrive well on a common border in sandy loam.

Propagated by dividing the plants in spring; but many species require to be propagated by cuttings taken off in spring, and placed in sand under a hand-glass, shaded from the sun, and when rooted planted out where they are to grow. Some of them produce seeds, which should be saved when ripe, and sown in a warm border in the spring. When large enough, transplant the seedlings in patches of threes where they are to bloom. There are about as many more species as those we have here named, but we have selected the best.

T. APPLEBY.

(To be continued.)

THE FIRST TREATISE ON THE CULTIVATION OF THE SOIL OF ENGLAND.

SIR ANTHONY FITZHERBERT died in 1538, and four years previous to that he published "The Boke of Husbandry." It was "Imprynted at London in Flete-strete, in the house of Thomas Berthelet, nere to the Condite, at the sygne of Lucrece." This is believed to have been published in 1534, but was the second edition, for a copy was possessed by the late Mr. Heber, "Imprynted by Rycharde Pynson," and dated 1523.* This has been considered the first original publication on English Agriculture, for Tusser's "A Hundredth good Pointes of Husbandrie," was first printed in 1557, "at London, in Flete-strete, within Temple barre, at the sygne of the hand and starre, by Richard Totell."

There is as early, if not an earlier, work, however, even than that of Fitzherbert's. It is entitled as follows:—

"Here begynneth a tratyse of Husbandry which mayster Groshede, segynthe byshop of Lyncoln, made and translated it out of Frenshe into Englyshe, which techeth all manner of men to governe theyr londes tenements, and demenes, ordinatly as the chapytres evidently is shewed."†

Now, whether or not this "tratyse" was written by "Mayster Groshede," it is quite certain that it was printed by Wynkyn de Worde, who was Pynson's contemporary, their earliest books being printed in the same year, 1493, and they continued rivals and publishing the same books until the date of Wynkyn de Worde's death in 1534. A few instances may be quoted. De Worde published *Mons Perfectionis* in 1497, and Pynson did so the same year; Pynson published *Dives and Pauper*, in 1493, and De Worde issued it in 1496; De Worde brought out *The Siege of Troy* in 1503, as did Pynson in 1513. That Wynkyn de Worde did print the "tratyse" is proved by the copy, the only one known to exist, in the University Library at Cambridge. It has his monogram, and is, beyond a doubt, from the same sharp, broad-faced old English type, and of the same black, unbrowned ink as gave birth to other acknowledged works from his press. It is without a date; but either it was published as a rival to Fitzherbert's "Boke," or this "Boke" was published to oppose Grosseteste's "Tratyse."

It is a small quarto of twelve leaves. On the first page is a woodcut representing a steward or other party of authority, who, with hands outstretched in astonishment, is reprehending a woodman, who certainly needed the reproof, for he is cutting off the top of a tree by the blows of an axe, which have made a ruinous gap half-way up the trunk.

As it is certain that it was printed by Wynkyn de Worde, so is it equally beyond a doubt that it treats of *English* husbandry. Grosseteste may have first "made" it in French, and then "translated it out of Frenshe into Englyshe," but still the truth is apparent that it is written concerning English husbandry, all the measures are English, and so are all the attendant particulars.

* Mr. Bradshaw, of the University Library, Cambridge, has favoured us with the following note:—There is a copy in the University Library at Cambridge (X-15-30), printed "in the house of Thomas Berthelet nere to the condite at the sygne of Lucrece. Cum privilegio," but without any date. The title is, "The Boke of Husbandry," within Berthelet's woodcut frame, on the sill of which is cut 1534; but this only implies that the book was not printed before that year. It is in 13 sheets in 8vo. B—M whole sheets, N a quarter sheet, and A at the beginning three quarters of a sheet. The two copies in the University Library correspond in everything. We think the date correct; for no printer would wish to make his book appear to be of older date than it really was.

† Somebody rendered it into Latin it seems, "De Agricultura (Translatio), lib. i., Mss. Coll. Magdal. Oxon, 57, olim in Bibl. Monast. Syon. in Bibl. Westmin."—(Pegge's *Life of Robert Grosseteste*.)

The best evidences of this that can be placed before our readers are the following extracts:—

The first is what we should now call a "Table of Contents."—

"**C** The i chapytre telleth how ye shall spende your good and extende youre londes.

"**C** The ii chapytre telleth how youre londe shall be mesured, and how many perches maketh an acre, & how many acres maketh a yerde of londe, and how many yerdes maketh an hyde of londe, and how many hydes maketh a knyghtes fee.

"**C** The iii chapytre telleth how many acres of londe y^t a plough may tele in a yere.

"**C** The iii chapytre telleth a plough of oxen or a plough of hors may tele more londe in a yere and whiche is more costly.

"**C** The v chapytre telleth in what season ye shall begynne to fallowe all maner of londes.

"**C** The vi chapytre telleth how ye shall lay youre londe at sede tyme.

"**C** The vii chapytre telleth how your londe shall be sowed in all seasons.

"**C** The viii chapytre telleth how ye shall chaunge your sede and nourysse your stubble.

"**C** The ix chapytre telleth how ye shall nourysse your dounge and wede your corne, and how it shall be mesured out of the barne, and how moche an acre shall yelde agayn more than your sede y^t ye sholde have wynnyng therby.

"**C** The x chapytre telleth how ye shall chaunge all maner of catell in season.

"**C** The xi chapytre telleth how ye shall chaunge youre werke bestes and wene youre calves, and what prouffyte ye shall have of youre kyne, and vayll to butter and chese.

"**C** The xii chapytre telleth howe ye sholde nourysse youre swyne and your pygges.

"**C** The xiii chapytre telleth howe ye shal nourysse your shepe and dyvers medycynes for theym.

"**C** The xiiii chapytre telleth what profytes ye shal have of youre ghees and hennes.

"**C** The xv chapytre telleth how ye shall bye and selle and preve youre weyghtes.

"**C** The xvi chapytre telleth how ye shall take a compte of youre balyf ones a yere."

Of these "Chapytres" we will republish four:—

"The ii chapytre.

"It is to wete that thre barly cornes take oute of ye myddes of the eere maketh an ynche and xii ynches maketh a fote. And xvi fote and an halfe maketh a perche, and xl perches in length and iii in brede maketh an acre of londe, and iii (acres) maketh a yerde of londe and v yerdes maketh an hyde of londe, and vii hydes maketh a knyghtes fee.

"**C** The iii chapytre.

"Some men say y^t a plough may not tele viii score or ix score acres of londe a yere. But I shall prove it by good reason y^t a plough may do it. **C** For ye shall undsonde than an acre of londe is in mesure xl perches in length and iii in brede, and the mesure of a perche is xvi fote and an halfe. **C** And so ye brede of an acre of londe is lxvi fote and so ye go with youre plough xxxiii tymes up and doune the londe and se the fyrst forowe be a fote and eche of the other be in lyke quantyte and then is an acre ured. And whan the forowe is as straye as it may be than is it xxxvi tymes up and doune the londe though it be a large acre. And the plough be never so feble attemoste ye have gone but lxxii tymes up and doune y^e londe, which is but v myle way. **C** Now truly the hors or oxen is feble that from the morowe maye not go softly iii myle from home and come agayn by none. **C** And by this other reason ye undsonde that there be lii wekes in the yere, take viii wekes for holy days and other lettynge and there remaneth behynde xliiii to werke in the se xliiii wekes ben cclx dayes besyde sondayes. **C** Also a plough shall ere thryes in the yere | y^t is to say in the wynter, in lenten, and in leke sede time. **C** In wynter a plough shall ere iii rodes and a halfe a daye. And on eche other seasons an acre on the day at the lest.

C Now knowe ye whether it maye be done or not, but by cause ploughmen carters and other fayne and werke not truly. **C** It is behovefull y^t men fynde a remedy agaynst theyr servauntes. And therefore it is necessary that the balyf or some of the lordes offcers be with them the fyrste daye of doynge folowynge and sowynge to se yf they do theyr werkes truly, & let theym answer you as moche werke as they dyde the fyrste day. **C** Also it is necessarye that youre balyf overse youre werke men ones in a daye to wete yf they do theyr werke truly as they ought to do,

and yf ye fynde theym contrary he shall chastyse theym resonable therfore, and by dyscrecyon, &c.

"**C** The iii chapytre.

"The plough of oxen is better than the plough of hors, but, yf it be upon stony grounde y^t whiche greveth sore the oxen in theyr fete. **C** And y^t plough of hors is more costly than y^e plough of oxen & yet shal your plough of oxen doo as moche werke in a yere as youre plough of hors, though ye dryve your hors faster than ye do your oxen, yet in what groude so ever it be youre plough of oxen, yf ye tele your londe wel and evenly, they shal do as moche werke one daye with a nother as your plough of hors, yf the groude be tough, your oxen shall werke where youre hors shall stande styll. **C** And yf ye will knowe how moche the one is costlier than y^e other I shal teche you. It is a costume y^t bestes y^t go to the plough shall werke from ye feste of Saynt Luke unto the feste of saynt Elene in Maye, that is to saye xxv weekes, and yf youre hors sholde be kepte in a good plyght to werke he muste haue dayly the syxt parte of a bushel of otes pryce ob.* and in gresse in somer season xii d. And every weke that he standeth at drye mete one with another ob. in strawe for lytter. **C** And in shoÿge as often as he is shodde on all foure fete iii d at the leste. **C** The somme of his expenses in the yere is ix s. vi d. ob., besyde hay and chafe and other thynges. **C** And as for the oxen ye may kepe hym in good plyght dayly to doo his journey gyuyng hym euery weke thre oten sheves pryce i d by cause x oten sheves yelde a bussell of otes yf they be made by the extent and in somer season xii d in gresse. **C** The somme of his expenses by the yere is iiis. i d. be syde strawe and chafe. **C** And yf a hors be overset and brought doune with labour it is adventure & ever he recover it. And yf your oxen be oversette and brought doune with labour ye shall for xii d in somer season have hym so pastured that he shal be stronge ynough to do your werke or elles he shall be so fatte that ye may selle him for as moche moneye as he coste you.

"**C** The xiiii chapytre.

"Ghees and hennes shall be at the delyueraunce of youre baylyf or lete so ferme a goos for xii d. in a yere. Fyue hennes and a cocke for iii s. in a yere and there be some baylyfs and deyes that say nay to this prouffytes. But I shall preue it by reason, for in halfe a yere be xxvi wekes, and in these xxvi wekes ix score dayes, and in eche of these dayes ye shall have an egge of ech henne & y^t is ix score egges of eche henne in that halfe yere, it is a feble sale of egges & xxx egges be not worth a peny and yf any of theym syt in that halfe a yere or some daye in defeaute of lyenge, ye shall be recompenced there fore, & of vi more to bere out the ferme y^e cocke, and w^t the sale of the chekens y^t youre syttinge hennes brynge forth in that other halfe yere. **C** Nowe shall ye se whether I say sothe or nay the pecocke shall answere as moche the for feders (feathers) as the shepe for his wolles. Every cove shall answere you a calfe. And every moder shepe shall answere you a lambe. **C** Every female swyne shall answere you xiii pygges at thrye farowÿges at two tymes at eche tyme iii & the thyrde tyme fyve the x for tythe. **C** Every henne shall answere you of ix score egges or of chekens to y^e value. **C** Every goos shall answer you of vi ghoslynges. And yf any of this catell be bareyne ye balyf shall answere you of the yssue that is loste through his euyl kepyng, by cause that he dyde not selle theym and put the sylver to other prouffytes to the value."

The last three or four pages are devoted to Gardening, and this portion has this commencement:—

"**C** Here begyneth the plantynge of trees and of vyues."

It is quite unworthy of the previous part, being a mere collection of the mis-statements of the Greek and Roman writers relative to altering the colour of fruits and similar indulgences of the imagination.

It has been doubted whether Bishop Grosseteste wrote all the works of which a list is given in his life by Pegge, as well as in Tanner's *Bibliotheca Monastica*. It has been truly said that they are equal in number to those produced by any of the great Arabian Philosophers. Indeed, in one department of literature—Poetry, he surpassed them, for we have his "Chastel d'Amour" among the Harleian MSS. But, the works enumerated, and mostly remaining in MS. are generally very brief, and do not exceed, even if they equal, in number of pages, the varied works published by Fitzherbert, who, also, found time, notwithstanding his profession, to write his "Boke of Husbandry."

Let us remark, also, that this is not the only work of Grosse.

* Obolus, a farthing.

teste that was thought worthy of being printed so many years after his decease, for his *Treatise de Artibus Liberalibus* and his *Commentary on Aristotle* were published at Venice in 1514.

Bishop Robert Greathead, for he was an Englishman, and his real name was only foreigned by such translations as "Grost-head" and Grosseteste," was a man of high attainments, and of a mind enlarged far above the generality of his contemporaries. He was the friend of Roger Bacon, and studied as he did the Natural Sciences. He was, says Sharon Turner, "intrepid and patriotic, foremost in every useful pursuit of his day, the friend and cultivator of poetry, scholastic philosophy, Arabian science, natural philosophy, mathematics, divinity, and canon and civil law. He was also the fearless and successful assertor of the liberties of the English Church, and a protector of the English clergy against the taxations and tyranny of the Pope."—(*Turner's Hist. of Middle Ages*.)

His letter to Pope Innocent in 1253 may be read in the Chronicle of Matthew Paris, and was so displeasing to the Pontiff, that he threatened to hurl upon him confusion and destruction. Greathead went fearlessly on to declare the Pope both a heretic and antichrist; and after death the Bishop was believed to have visited the Pope, and to have threatened and terrified him from his purpose of having the Bishop's bones dug up and thrown out of the church. The diffusion of such an idle tale implies the popularity of Bishop Greathead, and the preceding facts readily explain why the applications to Rome for canonizing him were but coldly received.—(*Wilkins' Concilia*, ii., 287.)

There is no sound reason, then, for doubting that Bishop Greathead wrote the "Tratyse of Husbandry;" and if he did, it is certainly the earliest relation we have of the earliest practices of English Agriculture, for he died in 1253, at Buckden, the episcopal residence of his see, and the agriculture he describes was that of the reigns of Henry II., Richard I., John and Henry III.

WINTERING CANNAS—BED OF GRASS-LIKE PLANTS.

RESPECTING the plants of Canna which you have noticed in your paper, am I to pot in sandy compost, and give no water till the spring, like the Callas? I have a fine plant of Canna in a 24-pot, the leaves of which are turning at the edges. Ought I to leave off watering it?

I cannot devote more than one bed to the plants you mention. I propose planting the Pampas Grass in the centre; then a circle of Tritoma and Canna; and outside a circle of Ribbon Grass. What do you think of this?—KATE.

[The Cannas for the out-door purposes may be wintered like Callas, or just like Potatoes. The "roots" of Cannas will keep dry and out of ground as long as the late Potatoes, away from frost or damp. We had a potful of the "Opera Girls" (*Mantisia Saltatoria*) sent us by a gentleman last May, which look much like your young Cannas. They (the roots) were so unwilling to leave our snuggerly and go to rest for the winter that we had to cease watering altogether by the beginning of October; turned out the ball on a shelf, and the leaves are not yet quite dried up. That will often be the way with the Cannas; they can be petted till they are spoiled, like children, will then have their own way, and be green and doing all winter, but by the middle of October they will have done the season's work; and whether they seem to like it or no, they ought to be made to go to rest for the winter.

Your idea eclipses ours with respect to the Pampas bed. The smallest plant of Pampas Grass will need a circular bed ten feet across in two or three years, and it would be "love's labour lost" to plant Tritomas nearer to it than five feet. Then Tritoma in two or three years will need more than a yard of room—say fourteen feet to the circle; and a row of Cannas will certainly need two feet; but say fifteen feet in diameter is the smallest circle to hold Pampas, Tritoma, Canna, to say nothing of Ribbon Grass, which can be made to occupy but one foot, if need be; but a yard is not near enough for it to have its own way.]

CAMELLIAS AND ORANGE TREES IN AYRSHIRE.

ACCEPT my thanks for the names of the best six evergreen plants for an orchard-house; and also for your suggestion as to the Camellias. I fear, however, that these would not thrive even

in the way you mention. Some years ago when I first had my orchard-house (which, however, is a little better than as Mr. Rivers described, for it is span-roofed, and fourteen feet high to the ridge), I had two or three Camellias planted in the border. All through the winter months they looked pretty well, but when February came, although they were not quite killed, they were next to it,—their blooms were finished.

I have an Orange tree which was also planted out in the border, and suffered in the same way. I had it potted in the following spring, but it has never done much good since. It is horribly infested with the scale. This summer it has been again repotted, and now it is sweating at the leaves most profusely. It exudes a sweet juice, which stands on the leaves like dew, and it even seems to squirt it out, because the ground around where it stands is quite covered with the nasty stuff. It is quite clear but sticky, and becomes black after a little while upon the leaves. Will you kindly help me to a cure, or at all events, to an explanation of the phenomenon?

I do not grow my fruit bushes in pots with the bottoms knocked off them, as recommended by Mr. Rivers. I take the tops of the chimney pots commonly used in this part of the country. They are twelve inches across the top, about ten at the bottom, and about ten deep. They are open throughout, but one or two sticks jammed in, make a good-enough bottom till the ball of the plant fixes itself like a wedge. They answer admirably and are cheap.—F.

[In your latitude the Camellias had a worse chance in your unheated orchard-house, span-roofed and fourteen feet high to the ridge, than in a common lean-to house, because the heat stored up in the wall would prevent the enclosed air getting so cold as in a span-roofed house. Your Orange tree has also suffered from cold, and, we fear, will do so both in the ground and out of the ground in a pot. If you wished to enjoy such a house thoroughly, why not run a pipe-flue through it, merely to keep out frost, as has frequently been mentioned? Your Orange tree is affected with honey dew. You can do little with it at present, but wash it clean with a sponge and soap and water, and then syringe it with clean water. If you can keep the stems alive until February, and then put your plant where it could get a nice moist heat, you might yet make a fine healthy plant of it, and get it well hardened to stand over the next winter. It would need protection with mats, &c., in cold nights, if you could not heat the house to keep the frost out.

We quite approve of your chimney crockery for pots. If cheaper than pots of the same size and as lasting, they are just all that the better. The sticks across the bottom are a capital idea. Some folks would despair and keep crying to Hercules to help them, before such a simple affair would have suggested itself even on an emergency.]

MAUVE COLOUR VERBENA.

I HASTEN to congratulate Mr. Jeffries, of Ipswich, on his good luck in raising a Verbena at last worthy of the name of Lady Middleton. It has passed through the office of THE COTTAGE GARDENER to our censorship, and I had a glimpse of it. Its fragrance filled the room, the colour is charming, and it is now warranted to stand all weathers, as well as *Géant des Batailles* or *Mrs. Holford*. Five out of seven of the fashionable dresses of this season are of the same colour as this Verbena; and Mr. Jeffries would be in the fashion next year, by sending out his *Lady Middleton Verbena* as a *mauve* colour. But a disciple of her ladyship in colours, must not pass *mauve* colour into the garden on such easy terms. In less than six months after Her Majesty Queen Victoria wore a dress of *mauve* colour at the wedding of the Princess Royal, there were five or six imitation shades of it, and I myself saw two of the shades then on ladies high up in the peerage, which tickled my fancy at the time; and I foresaw that by well ventilating the new colour with crinoline, we should soon have endless imitations of it, and endless shades of itself, for in fashions, as in other things, it never rains but it pours.

The first time I met this difficulty in practice was last March, when I was classifying the colours of the Hyacinths at the exhibition of the Messrs. Cutbush and Son, at Highgate. When I came to purplish-lilac in the flowers of *Dandy* and *Honneur d'Overeen*, I said "there was too much red for lilac, and too much lilac for purple in both of them," and that "there is only one real purplish-lilac; and a most magnificent thing it is;"

also, that "Her Majesty wore a dress of this colour at the wedding of the Princess Royal, with a foreign name to the colour, for which we have no equivalent." (See COTTAGE GARDENER, Vol. XXI., page 395.) The "most magnificent thing" was this mauve colour in the *Prince of Wales Hyacinth*; and as it would pay any family to be in the fashion, it would be worth while to buy a "root," of that Hyacinth, if not a dozen, just now, and learn from it, or them, in the spring what is the true mauve colour, for that Hyacinth will change from one to three or four tints of mauve, and any of the young ladies may choose a lawful mauve to suit her own taste. But I would as soon throw the money in the fire as allow myself to be *invested* in colours at the recommendation of the dealers, as if one had not as much knowledge of colours as to choose for himself. "Purplish-lilac" is the true mauve colour, and there is a deeper and a lighter shade of it, *in Nature*, in that Hyacinth. One must study and know any new colour, if it is *in Nature*, and if it is to be applied to flowers. Hence the reason for being so particular about mauve.

The French word *mauve* is pronounced in English just as if between *now* and *move*. The word is the French name of the officinal or medicinal Mallow, our *Malva sylvestris*, the flowers of which are of pink and purple. Pink and purple and a tinge of violet make a mallow colour, and mallow colour thus tinged is mauve.—D. BEATON.

CULTURE OF ROCK SAMPHIRE.

As the true Samphire (*Crithmum maritimum*) is, I believe, generally liked as a pickle, and as it is rather scarce and dear, both on account of its comparative rarity and the danger incurred by those who gather it from the faces of sea cliffs, which are, I believe, its exclusive habitats, some of the readers of THE COTTAGE GARDENER may be glad to know that it may be easily and successfully cultivated in a garden; at least, it thrives well in the soil of my garden, which is rather gravelly.

Samphire will not survive a hard winter without protection, except in its native habitats; but I have cultivated it for many years in pots, as a curiosity, placing the pots in a frame before hard frosts may be expected. I have occasionally turned a pot or two of it into the open ground in the spring; and it has increased so rapidly, that I think I have gathered from two plants enough to make a pint jar of pickle.

Perhaps some of the readers of THE COTTAGE GARDENER may not know that the plant usually sold for Samphire (*Salicornia herbacea*), has scarcely any resemblance to the real Samphire, either in appearance or in flavour. The *Salicornia* has no leaves, and the stalks are cylindrical. The leaves of the true Samphire (*Crithmum*) are, indeed, fleshy, but flat, and divided. It is an umbellate plant. *Salicornia* till it has imbibed vinegar in the pickle-jar has no taste at all, except a slight taste of salt. Those who procure it run no hazard whatever, as it grows very commonly in salt marshes, and in many places so abundantly, that swathes of it may be mowed, and cart loads of it carried to market, if there were a demand for so great a quantity.

The compost in which I pot the *Crithmum* consists of about two parts of sandy loam, and one part of chalk marl; but I think that it is not nice about its soil.—Q. Z.

HEATING A VERY SMALL PIT.

At the end of my garden I have a place dug out where I do all my potting, &c. In this place I have had a pit made, 7 feet long, 4 feet wide, and 4 feet deep, brick bottom and sides. Can you tell me how I am to heat it just sufficiently to keep the frost out, and prevent my plants, mostly small Geraniums, from damping off. Of course I am afraid of getting too much heat. If you could tell how to warm the pit without too much expense I think it would be conferring a boon on many others situated like myself.—R. M.

[The smallness of the place, and, we presume, the distance from the house, constitute the difficulty. It might be heated on the same principle as the Waltonian Case; and little heat would do if the walls and glass were covered in severe weather. Unless for tender things, mere covering would be sufficient if carefully attended to. An inverted iron funnel, a foot at least in depth, might be fixed at one end, so that a largish candle that needed no snuffing might be placed beneath it; and an iron pipe, an

inch in diameter, might go from the funnel round the pit, and then out into the air; and with a mat covering, that, we presume, would be sufficient. You seem to have a great depth for little plants. We suppose you have a platform on which to stand the plants. That will leave a cavity beneath; and in that cavity you might have a small door in the wall, through which on emergencies, without moving the sashes, you could introduce tea-kettles—or, better still, large bottles filled with hot water. In a similar place we have seen a tea-kettle holding about two quarts hollowed out so as to be concave at the bottom, a gas jet placed below it, and an inch flow and return pipe of galvanised iron filled with water going round the house. If the pit had been fourteen or twenty-one feet long, we should unhesitatingly have recommended a small earthenware pipe flue, and a simple brick furnace placed inside, but to be fed from the outside.]

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 40.)

PEARS.

CROFT CASTLE.—Fruit medium sized, oval. Skin greenish-yellow, covered with large brown dots. Eye large and open, with long recurved segments. Stalk an inch and a half long, slender and curved. Flesh very juicy, sweet, and perfumed. Ripe in October.

The tree is a most abundant and regular bearer, succeeds well as a standard, and is well adapted for orchard culture.

Cuiellette. See *Jargonelle*.

Curé. See *Vicar of Winkfield*.

Cypress. See *Early Rousslet*.

Davy. See *Flemish Beauty*.

Dean's. See *White Doyenné*.

DEARBORN'S SEEDLING.—Fruit small, turbinate. Skin smooth, of a pale yellow colour, strewed with small russety dots. Eye large and open, set in a shallow depression. Stalk long and slender, inserted in a small cavity. Flesh white, very juicy and melting, sweet and pleasantly flavoured. An early pear, ripe in August.

Delbert. See *Beurré d'Amanlis*.

Delfosse Bourgmestre. See *Beurré Delfosse*.

DELICES D'HARDENPONT.—Fruit above medium size, obtuse-pyriform, irregular and uneven in its outline. Skin smooth, bright lemon-yellow when ripe, thickly covered with pale brown russet. Eye small and open, set in an uneven and considerable depression. Stalk an inch long, thick and fleshy. Flesh white, tender, buttery, and melting, rich, sugary, and perfumed. A good pear, ripe in November.

DELICES D'HARDENPONT D'ANGERS.—Fruit medium sized, roundish-obovate. Skin pale yellow, with a tinge of clear red next the sun, strewed with russety dots and patches of russet. Eye small and open. Stalk short and thick, obliquely inserted in a small cavity, and fleshy at the base. Flesh white, rather coarse-grained, juicy, sugary, and agreeably perfumed. Ripe in November.

DELICES DE JODOIGNE.—Fruit medium sized, pyriform. Skin thin, pale yellow, marked with flakes and dots of pale brown russet. Eye open. Stalk short, very thick and fleshy. Flesh half-melting, sweet, sugary, and aromatic. Ripe in the beginning and middle of October.

Deschamps. See *Beurré d'Aremberg*.

Desirée Van Mons. See *Fondante de Charneuses*.

DEUX SŒURS.—Fruit large, oblong, and ribbed. Skin green, changing to yellowish-green, and strewed with dark dots. Stalk an inch long, curved. Flesh greenish-yellow, buttery, melting, very juicy and sugary. Ripe in November.

Diamant. See *Gansel's Bergamot*.

Dingler. See *Comte de Lamy*.

DIX.—Fruit very large, Calebasse shaped. Skin deep yellow, covered all over with rough russet dots and markings of russet. Eye small, set in a wide, shallow depression. Stalk upwards of an inch in length, stout, and inserted without depression. Flesh rather coarse-grained, juicy, sweet, and slightly perfumed. A second-rate pear, ripe in November.

Dr. Bretonneau. See *Beurré Bretonneau*.

DR. TROUSSEAU.—Fruit large and pyriform, wide towards the apex. Skin rough, greenish-yellow, covered with numerous grey specks and russet flakes. Eye open, sometimes wanting. Stalk three quarters of an inch long, woody, and inserted in a narrow cavity. Flesh white, buttery, melting, and very juicy, sugary, and with a powerful aroma. A very excellent pear, ripe in December.

Dr. Udale's Warden. See *Uvedale's St. Germain*.

Dorothée Royale. See *Beurré Diel*.

Double Philippe. See *Doyenné Boussoch*.

Downham Seedling. See *Hacon's Incomparable*.

DOYEN DILLEN.—Fruit above medium size, pyramidal or pyriform. Skin yellow, very much covered with dots and patches of russet. Eye small, half open, and set in a slight depression. Stalk short, thick, and fleshy, inserted without depression. Flesh buttery and melting, very juicy, sweet, and richly flavoured. An excellent pear, ripe in November.

Doyenné d'Automne. See *Red Doyenné*.

Doyenné Blanc. See *White Doyenné*.

DOYENNÉ BOUSSOCH (*Beurré de Mérode: Double Philippe; Nouvelle Boussoch*).—Fruit very large, roundish-obovate, or Doyenné shaped. Skin lemon coloured, covered with large, rough, russety dots. Eye open, placed in a shallow basin. Stalk short and stout, inserted in a narrow cavity. Flesh yellowish-white, tender, very melting and juicy, with a fine brisk vinous juice, and a delicate, agreeable perfume.

A delicious and very handsome pear, ripe in October.

Doyenné Crotté. See *Red Doyenné*.

DOYENNÉ DEFAIS.—Fruit small, roundish-obovate, or Doyenné shaped, bossed at the stalk end. Skin yellow, very much covered with cinnamon-coloured russet. Eye rather large and wide open, set in a shallow depression. Stalk about an inch long, set in a deep, wide, and furrowed cavity. Flesh tender, buttery, melting, and very juicy, rich, sugary, and vinous, with a fine musky aroma.

A most delicious pear; one of the best. Ripe in December. The tree is hardy, and a good bearer.

Doyenné Esterckman. See *Beurré Sterckmans*.

Doyenné d'Été. See *Summer Doyenné*.

Doyenné Galloux. See *Red Doyenné*.

Doyenné Gris. See *Red Doyenné*.

DOYENNÉ GOUBAULT.—Fruit above medium size, obovate, inclining to pyriform. Skin pale yellow, with markings of russet about the stalk and the eye, and covered with russety dots. Eye small, set in a rather deep hollow. Stalk short and thick. Flesh melting, juicy, rich, sugary, and aromatic. An excellent pear, ripe in January.

Doyenné d'Hiver. See *Easter Beurré*.

Doyenné d'Hiver Nouveau. See *Easter Beurré*.

Doyenné Jaune. See *Red Doyenné*.

Doyenné de Juillet. See *Summer Doyenné*.

Doyenné de Pacques. See *Easter Beurré*.

Doyenné Pictée. See *White Doyenné*.

Doyenné de Printemps. See *Easter Beurré*.

Doyenné Rouge. See *Red Doyenné*.

Doyenné Roux. See *Red Doyenné*.

Drummond. See *Charnock*.

Dry Martin. See *Martin sec.*

Duc d'Arenberg. See *Beurré d'Arenberg*.

Duc de Bordeaux. See *Belle Epine du Mas*.

Duc de Brabant. See *Fondante de Charneuses*.

DUC DE NEMOURS (Canet).—Fruit growing in clusters, oblong-obovate. Skin yellow, strewed with reddish and grey dots. Eye open. Stalk an inch long, thick, inserted without depression on a fleshy knob. Flesh rather coarse-grained, juicy and sweet. A second-rate pear, ripe in December.

Duchesse. See *Duchesse d'Angoulême*.

DUCHESSÉ D'ANGOULÊME (*Duchesse; Eparonnais; de Pézénas*).—Fruit large, sometimes very large, roundish-obovate, very uneven and bossed on its outline. Skin pale dull yellow, covered with veins and freckles of pale brown russet. Eye open, set in a deep, irregular basin. Stalk an inch and a half long, stout, inserted in a deep irregular cavity. Flesh white, buttery, and melting, with a rich flavour when well ripened; but generally it is coarse-grained and half-melting, juicy, and sweet.

A dessert pear, sometimes of great excellence, ripe during October and November.

Duchesse de Berri d'Été. See *Summer Doyenné*.

Duchesse de Berri d'Hiver. See *Uvedale's St. Germain*.

DUCHESSÉ DE BRABANT.—Fruit medium sized, short pyriform, even in its outline. Skin very thin, smooth and shining, greenish-yellow, thickly strewed with russety dots, and with a patch of russet round the eye. Eye large and open, set in a shallow basin. Stalk an inch long, inserted without depression. Flesh yellowish-white, buttery and melting, very juicy and sweet, with a pleasant aroma.

An agreeable and refreshing pear, ripe in November.

(To be continued.)

BULBS IN A GREENHOUSE-BORDER.

In a lean-to greenhouse, erecting upon a two-foot wall, I have thought of planting the Vine in a bed inside, and close to the wall, using the border in which it is placed for choice bulbs, &c.; placing the plants in the greenhouse upon the ground, instead of raised stands.—A. B. C.

[You do not give us the size of the border, nor the kinds of bulbs you intend using. We see nothing to prevent the bulbs doing well, if you can water and rest them as they require; and can do this and water the Vines as they require. We should be inclined, as stated last week, to have an edging nine or twelve inches deep, above the surface of the border, and then to grow the bulbs in pots, covered with nice moss all over, and move the pots as they required it. The Vines will do very well if drainage, &c., is right. In low houses stages are not required; nor in any house, if the plants are of good size.]

GROWING CHRYSANTHEMUMS FOR EXHIBITION.

WE are about to form in our little town (Ross) a Society for the exhibition of the Chrysanthemum, a flower at present but little cultivated here. We are, therefore, quite novices in the mode of culture. May I beg, on the part of each proposed member, an answer to a few queries?

1. Where can I procure rules for the working of the Society?
2. Is it necessary to grow the plants on one stem, with the routine of pegging, as recommended by Mr. Broom of the Temple Gardens?
3. To what rules must a flower answer, to constitute it a show flower?
4. Why must the plants be grown in pots? or may they be grown in the ground and potted in time for exhibition?
5. What are the best named plants (or kinds), large and small, in habit and bloom, fit for exhibition,—say half a dozen of each?
6. When is the best time to order plants, now or in the spring?

In question 5, we do not want the new high-priced flowers, but the older and moderate-priced ones, provided they are as good.

I have grown some few Pompones in pots from cuttings, but do not like their appearance. The foliage is small and scant.

They have been grown on the pegging system (a very reprehensible one, in my opinion). They have not wanted for water or liquid manure. Their last shift was into eight-inch pots the latter end of July last. What, in your opinion, is the cause of their disappointing me?—Z.

[1. You may procure a copy of the rules by sending a letter (enclosing a stamped envelope) directed to Mr. A. Wortley, Secretary to the Stoke Newington Chrysanthemum Society, Stoke Newington Common, near London. The rules will give you full information how to form a Society for this especial purpose. The number of the managing committee, the times they meet, and the amount of prizes given, may, of course, be altered to suit your convenience.

2. The above Society insists upon the plants being grown on single stems. The branches may be either pegged down or tied out as the cultivator pleases. I should say the tying out would be the fairest and best mode for all exhibitors. The Crystal Palace Directors in their rules for Chrysanthemum exhibitors, also have a stringent rule that all plants of Chrysanthemums shall be shown grown on a single stem. Both, also, restrict the size of pots for the large varieties to not more than eleven inches diameter, and the Pompones to not more than eight inches diameter. In order, however, to show what can be done with a number of plants in one pot, offer prizes for single specimens so grown.

3. Refers to the properties of the Chrysanthemum as a florist's flower. On this point Mr. Glenny has some sensible remarks, which I take the liberty of quoting. "It is impossible to select one less fit to exhibit, cut from the plant, and that individually there is nothing to hope for in the bloom itself that should raise it to the dignity of a florist's flower; but as there is great merit in growing the plant well in pots, and as the plant is showy when there is a scarcity of bloom in a house, they ought always to be shown in pots only, and the merits of the plant be taken into account quite as much as that of the bloom, and as such we shall notice both.

"First. The plant should be dwarf, shrubby, well covered with green foliage to the bottom, the leaves broad and bright, the flowers well displayed at the end of each branch, come in abundant quantity, and be well supported by the stems. (To which I would add, that the plants be exhibited with one stem only.)

"Second. The flower should be round, double, high in the crown, perfect in the centre, without disk or confusion, and of the form of half a ball.

"Third. The individual petals should be thick, smooth, broad, circular at the ends, according with the circle of the flower, the indentations where they meet hardly perceptible.

"Fourth. The petals must not show their under sides by quilling, and should be of such firm texture as will retain them all in their place. Size of bloom to be large in proportion to their foliage; but size only to be considered when the plants in all other respects are equal."

These are Mr. Glenny's rules to decide on the properties of the Chrysanthemum. I venture to differ from his dictum in two points.

I think a fine quilled Chrysanthemum is very handsome, and, therefore, ought not to be considered as a defect. Also, that the varieties of the Chrysanthemum have been so much improved since Mr. Glenny wrote the above in 1847, that it has now raised itself to the dignity of a florist's flower, even when cut from the plant. The Stoke Newington Society and the Directors of the Crystal Palace think so too, as is evident from the fact that they both offer prizes for stands of cut blooms.

I would suggest a property of colour to be taken into consideration. All self-coloured flowers should have the different colours clear, bright, and distinct. Where there are two or more colours in one flower, each colour should shade away into the adjoining one regularly throughout every petal.

4. There is no restriction in the mode of growing the plants previous to potting them; but after their final potting they must be exhibited in the pots in which they have bloomed. The Crystal Palace rule on this point is: "Plants exhibited in pots others than those in which they were grown will be disqualified."

5. Six kinds are not sufficient for a grower to contend for and win prizes. He ought, at least, to procure a dozen of each class—that is, large varieties, and Pompones varieties. The following will be found suitable for exhibition, and may be procured for 9s. the dozen of any respectable grower. Larger plants and newer kinds would be, of course, higher in price:—

TWELVE SELECTED LARGE-FLOWERED CHRYSANTHEMUMS.

Ascania, golden yellow; large and double.
Aimee Ferriere, silvery white, tipped with rose pink.
Captain Thoubais, dark cinnamon, with bright red disc.
Elizabeth, pure white, incurved; fine.
Gloire Toulouse, snowy white, imbricated; good form.
Lothario, light ruby red, incurved; good.
Louis Vilmorin, carmine red.
Madame Lagarique, amaranth rose; very double and imbricated.
Madame Leo, ivory white; very high centre; extra fine.
Monsieur Deschamps, canary yellow; flowers large.
Progne, bright crimson carmine; a most brilliant flower.
Stellaris globosa, carmine crimson and white, incurved; a fine show flower.

TWELVE SELECTED POMPONES, OR SMALL-FLOWERED.

Aureole, crimson scarlet and orange; fine.
Crocelle, cinnamon maroon; the points of the petals tipped with gold; very double.
Filletto, pure white, changing to rose round the border; very double and imbricated.
François the First, reddish orange; very full and fine.
Général Canrobert, pure yellow; free; good for show.
Iphegenie, lilac rose; the form of a Ranunculus; superb.
Josephine Latrouche, pure white, imbricated; very good.
Mademoiselle Elize Cassaigne, rose tipped with yellow; very double and imbricated.
Marmouset, cinnamon carmine tipped with gold; very double and imbricated.
Mr. Lebois, striped carmine rose tipped with gold; a fine round flower well imbricated.
Reine des Panaches, white beautifully striped with rosy lilac; very double, imbricated, and unique.
Thetis, clear yellow; very double and well formed.

To suit our correspondent I have selected the above twenty-four varieties out of older kinds, because of their price. It is probable, however, that some of our readers may wish for new kinds, regardless of their price. To suit such, I give the names and descriptions of twelve of the new kinds, the price of them is about 2s. 6d. each.

SIX SELECTED NEW LARGE VARIETIES.

Aurora, clear ochre yellow; very full and fine.
Golden Queen of England, golden canary; fine, full, and incurved.
Julia Lagravere, dark velvety crimson; compact dwarf habit and free bloomer.
Madame Clos, beautiful rose lilac; very double; extra fine.
Prince Albert, bright crimson; large, double, and a free bloomer.
Una, pure white; fine form and very large.

SIX SELECTED NEW POMPONE VARIETIES.

Baron d'Adswaerd, blush tipped with rosy lilac; very double and fine.
Esmeralda, red, salmon, and orange; double, and a free bloomer.
Golden Cedo Nulli, golden yellow, with brown points; very fine.
Maid of Sarragossa, rose and blush; free, double, and fine habit.
Miss Talfourd, pure white; double and fine.
Mr. Shirley Hibberd, bright rose, lilac, and gold centre; very fine and distinct.

6. The best time for ordering the plants from a nursery is just now. They will either be in flower or progressing towards it, and, consequently, their qualities can be proved at once; and, besides that, the plants will afford abundance of cuttings at the time for propagating. They might, of course, be ordered in the spring, but from the suffering by the way, and not being under the care of the cultivator early, they would not make such good specimen plants that season.

Lastly. Our correspondent, by what he says in a postscript, seems not to have been successful in growing some Pompones varieties. I think he has injured his plants by delaying the last potting till late in July. He does not say whether the plants have been plunged during the hot summer months. If they have not been plunged, the hot sun in spite of all his watering

would cause the leaves to be small and scant, and all the lower ones to turn yellow and drop off, leaving the lower branches naked. Plants so grown could never win a prize at an exhibition. No doubt many of our readers, as well as "Z.," would be glad to know how to grow specimen plants of these beautiful autumnal flowers. It will be an appropriate conclusion of this paper to give the result of my experience in their culture.

Soil.—The Chrysanthemum being of a free, gross habit, requires a rich, strong compost. Procure some green turf from an old pasture, chop it up and lay it on a heap for two months, or longer. Add to it half as much half-decayed dung, and a fourth of sandy peat. Mix all together well, but do not sift them. This, with other points of culture attended to, will grow them well.

Summer Culture commences with the first potting in April. The plants will then, or ought to be, nice stocky plants, with one stem, in four-inch pots. Pot them without disturbing the balls into six-inch pots (Pompones one inch less), press the soil firmly round the balls, and leave nearly an inch of the pot unfilled up. This is to hold a sufficient supply of the water to thoroughly moisten the entire mass of soil in each pot. Stop each shoot severely in order to get branches down to the short main stem. As the shoots advance in growth, place a stick to each shoot, so as to spread them out equally all round. Repot again in May into nine-inch pots (Pompones into six), and again stop every shoot, tying them out as before, and, finally, towards the end of June give them their last shift into their blooming-pots. Large varieties into eleven-inch pots, and Pompones into eight-inch pots. If the plants have now plenty of shoots do not stop them at this shift; but if scanty of shoots part of the strongest may be topped to fill up the plant. Tie them out again, to keep the branches separate, so as to form handsomely-shaped bushes. This opening-out of the branches gives air to every leaf, and preserves them green and healthy.

Watering.—Water ought to be given most abundantly during the whole season of growth. *The plants should never be allowed to flag.* Once a week after the pots are filled with roots give them a good dose of liquid manure. To still further feed them plunge the pots in May in coal ashes in an open part of the garden; observing this, not to crowd them at all in such a situation, let each plant have plenty of air and light on every side. Syringe them in dry weather twice a-day. In showery weather, of course, this is not requisite.

Towards the end of September lift the pots out of the ashes; and if any roots have protruded through the holes, just turn out the ball, carefully drawing the roots through the holes with the ball, then drop the ball and the extra roots into the pots again, and give a good watering. Let the pots stand on the ash-bed for a few days, and then remove them into the greenhouse, and here be very careful not to crowd the plants: if you do, the lower leaves will certainly drop off. In this drying situation double attention must be given to the supply of moisture, with plenty of fresh air *day and night*, in order to keep them fresh, green, and healthy. Some attention now must be paid to the buds. In order to give the plants intended for exhibition every chance to produce fine, large blooms, the buds should be thinned, all the weak ones removed entirely, and only the best of the strongest left to bloom. Care must be taken, however, that every part of the bush has its share of bloom.

Winter Culture.—This is not a serious or heavy affair. As soon as the bloom is over, cut down the shoots and place a sufficient stock of each kind in a cool pit, giving just sufficient water to keep the plants alive through the winter. If any of these year-old plants are intended to be grown the second season no suckers should be allowed to live, they must all be destroyed as they appear, and such plants should be taken out of the large pots, their balls reduced, and repotted in as small pots as they can be put into; then in spring to have the same treatment as described above for younger plants.

Propagation: by Cuttings.—Take them off in February. The short, stubby shoots make the best cuttings. Cut off the lower leaves and insert the cuttings in five-inch pots round the sides. Fill the pots first with pure sandy loam, with a thin layer of sand on the top. Place the cutting-pots in heat covered with a hand-light, or, which is better, on sand in a frame set upon a gentle hotbed of leaves or littery dung, shading them from the sun. Here they will root quickly; and as soon as they are rooted pot them off into small pots, replacing them for a week or ten days in the frame, or under the hand-light. Water very moderately till the plants have made roots, and fresh growth, then

harden them off gradually, and place them under a cold frame, giving plenty of air in fine weather, and protection from frost at night. By this time they will be fit to operate upon as described under the head "summer culture." Old plants may be used to plant out in the open air in April. In the north they require to be planted against a south wall to bloom well.

Insects.—All the above care will be fruitless if the green fly be not kept under. It is the only insect common on these plants. The usual old-fashioned remedy—tobacco smoke, is the best for destroying them. I have not had the opportunity yet of trying the far-famed Gishurst Compound; but I do know that tobacco smoke well applied will effectually destroy both the green and black fly. If these insects appear on the plants in the open air, dip the end of the shoots in tobacco water.

Mildew sometimes attacks the plants in cold, damp weather. To destroy it dust the leaves with flowers of sulphur.—T. APPLEBY.]

NEW BOOK.

*THE PEACH AND NECTARINE.**—Every reader expects that the contents of a book upon fruit-culture written by two such able practical gardeners will be sound and useful; nor will they in this instance be disappointed. It is correct and quite reliable in all that it contains, though every reader will wish that it afforded more complete details, and followed the tree year after year, and season after season, until of full stature. It is plain in many sections that the author left them unfinished, and that the editor felt trammelled by what was thus placed in his hands imperfect. It is easier to make a new coat than to match and finish one begun and left without enough of the original cloth to complete it. However, what is supplied is good, and we give the following as a specimen of what is furnished by author and editor:—

"STOCKS, &c.—The practice of budding upon the plum-stock is, no doubt, the best that can be followed, particularly for such trees as are intended for the open walls, on account of their superior hardiness. In connection with this subject, I may mention that I am of opinion that dwarf trees for walls are not desirable, and for this reason:—The atmosphere so near the surface is always some degrees colder than four feet up the wall; consequently, a hardier stock, say a half-standard plum-stock, would not be so likely to suffer from the spring variations of temperature. From whatever cause it may arise I cannot divine, but I have long observed that standard trees in general succeed better than dwarfs, and, therefore, I feel justified in commending them.—[I entirely coincide with the above remarks of the author with regard to the superiority of standards over dwarfs, having long observed the same to be the case in several places. I would here mention a plan which I consider very desirable to be adopted with the stems of standard trees against walls, and from experience I feel satisfied that it is a good plan, and that is to cover the stems with neatly twisted hay-bands from the time they are planted. I have every reason to believe, that by affording them this protection from the sun in summer, and the frost in winter, they will increase to quite double the size they would attain without that protection. That the stems of standard trees against walls do often become hide-bound we well know, and I am fully convinced that the above practice will be found a great preventive of that evil."]

TRADE LISTS RECEIVED.

A Descriptive Catalogue of Fruits Cultivated by Thomas Rivers, Sawbridgeworth, Herts, 1859.—Like Mr. Rivers' former Catalogues this contains copious notes on the descriptions and mode of culture of the different varieties of fruit, and we observe in it many new varieties which have not been offered before.

A Descriptive Catalogue of Selected Roses Cultivated by Thomas Rivers, Sawbridgeworth, Herts, 1859—60 embraces all the best varieties of this charming flower, of which there are full descriptions of their several qualities.

A Descriptive Catalogue of a Selection of Roses Cultivated by A. Paul and Son, Cheshunt, Herts.—In addition to excellent descriptions of the form and colour of the flowers, we have in this Catalogue an account of the habit of growth of each variety,

* *The Culture of the Peach and Nectarine.* By G. M'Ewen. Edited and enlarged by J. Cox. London: Groombridge and Sons.

which will greatly aid cultivators in the arrangement of their Rose-beds.

A Descriptive Catalogue of Selected Roses Cultivated by John Cranston, King's Acre, Hereford.—This is also an excellent Catalogue, arranged with great care, and well got up.

Catalogue et Prix Courant des Végétaux disponibles pour l'automne 1859 au printemps 1860.—This is a Catalogue of general nursery stock offered for sale at the respectable nursery establishment of Mess. Lefèvre, Père et fils, Mortefontaine, Chapelle-en-Serval (Oise), France.

TO CORRESPONDENTS.

FLOATING LIGHT IN A HOTBED (*S. Wood*).—This is to help in excluding frost during severe weather. One, two, or three saucers containing water, and Colza oil floating on its top, may be placed in different parts within the frame. A slice of cork with a piece of tin tube through it, and a piece of cotton for a wick in the tube, are placed on the oil and the cotton lighted at night. Take care that the lower end of the wick does not touch the water. This is prevented by having a sufficiency of oil always in the saucers. Ventilation must be well attended to.

LAWN, &c. (*A. E.*).—If you have good turf near, that is the most expeditious mode of forming a lawn. There is no great art in levelling the ground; the chief care is to have it rolled equally solid all over. A labourer can do it under your superintendence. Buy our "Garden Manual," at p. 135 you will find full directions. Rhododendrons and Azaleas will grow very well in a clay soil, especially if you dig into it charred rubbish, the bottom of a woodstack, and rotten sawdust. Do not add chalk or lime rubbish. It is death to them. We have not yet sufficient experience of "lawns without mowing" to justify our recommending that at present. If the *Spergula* prove permanent, it will entirely supersede Grass. Not knowing the kinds, nor the soil, we cannot say why Nectarines do not ripen on your south wall. We should think the roots have descended deeply.

GENERAL INDEX (*C. M., Black Rock*).—Very numerous have been the applications for this, but upon beginning its preparation we found it quite impossible to sell it for a shilling as proposed. It could not cost less than three times that amount, and probably somewhat more.

COST OF PROPAGATING PIT (*W. P. H. B.*).—We never give such estimates, for prices must vary with localities. Show a plan to two builders, and get their estimates. You will see from an advertisement last week what can be done in the heating way for ten pounds.

AQUARIA IRON-FRAMES (*D. S. R.*).—Write to one or more of the manufacturers of horticultural iron-work who advertise in our columns.

HAWTHORN (*Inquirer*).—The meaning of this name is literally Hedge-Thorn. *Haw*, pronounced *haigh* in the north, *Ha-ha*, and *hedge* are all derived from the Anglo-Saxon word *Hwg*, a hedge.

ROSE (*An Old Gardener*).—We never yet saw a garden which had not a roseroy in it as part of itself; therefore, there must have been as many styles of roseries as there are styles of gardens, and all that we require to be able to give any one this "positive boon," is the plan and section of his or her present garden. Send us up your plan, and by next month you shall have what you need.

BULBS (*Rose*).—There is no *Nerine Fothergillii*. None of that genus, or allied genera, were called after the good Doctor Fothergill. *Nerine venusta* is the head of the Guernsey Lily section of the family. It should be now in bloom, and the leaves just above the soil, and it must be kept growing, and almost in the open air all the winter, free from frost, and it will cast its leaves early in June. No treatment can alter any *Nerine* from growing in winter, and resting in summer, and they all bloom in the autumn, before, or with the rise of the leaf. *Amaryllis aulica* is far from being an *Amaryllis*, and much farther from the *Amaryllis* treatment. Its times of growing and blooming may be altered to suit convenience, while *Amaryllis* is absolute in these habits. *Aulica* is a fine stove bulb, and if it is now going to rest, all the better; let it rest till the time of the convenience of a hotbed comes round in the spring, then the treatment is the same as for a Cockscomb, till it is out of bloom, and a free growth in a spent hotbed all the summer, will cause it to rest in winter. *Vallota purpurea* is a hardy greenhouse evergreen bulb. *Amaryllis formosissima*, to be now, and always in October, dried off, and to be kept dry till there is a hotbed ready in March to start it, or in default of one, to the end of April; then to plant in the open ground, or in a pot; and after the flowering is over to be planted out. *Formosissima* should never be seen in a pot from the middle of May till the end of October, when it must be put to rest. But with plenty of bulbs, one could force it to bloom from February till it comes naturally in May in the open ground. The *Lilium lancifolium* may rest as they are till February, and *Tritoma uvaria* should be planted out at once where it is to bloom.

PAMPAS GRASS.—We are desirous to put the progress of the Pampas Grass upon record, and would thank subscribers to send us short notices of the age, height, and number of flower-spikes of their plants, with their ages and treatment, as to kind of soil, exposure, and watering.

DEUTZIA SANGUINEA (*J. G.*).—It was in the possession of Messrs. Knight and Perry, Exotic Nursery, King's Road, Chelsea. Messrs. Veitch now have that Nursery.

GARDENING WORK (*H. W. J., Preston*).—The *Cottage Gardeners' Dictionary* will give you the information you need. Its price is eight or nine shillings.

BAMBUS GRACILIS (*W. L. N.*).—That *Bambusa* is hardy in the climate of London, Edinburgh, and Belfast; but for all we know to the contrary, it may be a very tender subject where your question was raised. No one could answer that question properly, the part of the world for it being not given. What the cultivation, or how it would look on a lawn, depends so entirely upon what country or kingdom in which it is to be so used, that we dare not even suggest how. But in all parts of Britain it would look better

near water, rocks, ruins, broken grounds, as valleys, dingles, and high banks; also, next best, at the edgings of lawns, next to deep-shaded plantations. With us, such a reed standing out on the grass would have no meaning.

LAYING-OUT GROUND (*An Old Subscriber*).—There is no better book on this subject than Mr. Kemp's "How to lay out a Garden." It is written by one of our first landscape gardeners in a style that anybody can understand. It is copiously illustrated, and with designs, and is very moderate in price.

HEATING APPARATUS (*G. Roltsie*).—We cannot see through the adaptation of your plan, though we admire the ingenuity and the search after preventives. If *E* is to be the regulator of the hatching machine, or any other contrivance for heating, its regulating power would soon be exhausted, and the self-acting lever we have little faith in under such circumstances. The water must be hot indeed, if that at *b*, or *c* either, were 180°. It could hardly take place unless with a tremendous coal fire beneath a boiler that had only a few feet of pipe to heat. We think the whole affair would be simplified by having a cistern connected with both top and bottom pipe by means of stop cocks. Open these and the cistern will be heated to the requisite degree. Shut them and it will continue at that degree for some time. The circulation will continue in the pipes though shut off from the cistern. Open the connection, and again an equalisation of temperature will, ere long, take place, to be regulated to a nicety by the stop cock. A hitch in a self-acting lever might do no end of mischief.

PELARGONIUMS—SEEDLING DATURA WIGHTII (*H. M. P.*).—You have received three dozen of third-rate Pelargoniums. They were all of them, however, the best of their day. Keep *Pearl*, *Electra*, *Mark Antony*, *Hermionie*, *Virgin Queen*, *Othello*, *Cassandra*, *Maycress*, and *Sarah Jane*, and you will have all the best colours and best flowers. *Virgin Queen* is the oldest of the present race, and yet it is in the show-stands of the best growers to the present day; but *Pearl* is much the better white of the two, and *Pearl* is still as good as any of the new whites. You are quite right; ten good plants of ten kinds of good Pelargoniums are better than one hundred plants, and one of a kind, no matter how good some of them might be. These selections make up the secret of success in gardening. Keep the *Datura Wightii* by all means, and turn it out of the pot in good soil by the end of May. Something in the air, or at the roots, caused the buds to drop, but drop it out of the pot and it will soon fight its way to all its honours. The *Achimenes* keep better in the old soil in a warm place. We have not yet heard from Mr. Beaton about them. Much depends on the "roots" one begins with. If the plants were of this season, and from cuttings, you will lose every one of them, as the substance of the roots is not enough to hold out so long.

LAPAGERIA ROSEA (*J. R. R.*).—This plant has not the smallest chance of living out one whole season in a rich loamy border of six years standing, and already in the full possession of the roots of three of the most voracious climbers under the sun. Here is just a case in point, where the most promising young gardeners lose their places and their characters for the simple reason of minding the promptings of the "governor against their better judgment." Do as you suggest with *Lapageria*, and none can do better. Your plants are *Plumbago Larpenae* and *Aster multiflorus*.

NAME OF ASTER (*A. M. R.*).—Your *Aster* is the *A. lividus* of the very large collection of *Asters* that used to be under the care of the late Mr. Bagster, in the Oxford Botanic Garden. It is in our lists called *A. multiflorus*.

NAMES OF FERNS (*W. R. Hayward*).—1. *Lastræa filix-mas* v. *paleacea*. 2. *L. f. m. v. incisa*. 3. *L. dilatata*, a variety. 4. *Scolopendrium vulgare* v. *crenata-lobatum*. 5. *Cystopteris fragilis*, a variety. 6, 7, and 8 are all *Polypodium Robertianum*.

NAMES OF PLANTS (*Rudolphus*).—It is impossible to be certain what your plants are without better specimens being sent. The larger leaf somewhat resembles that of *Picridium vulgare*, and the small tip of the shoot bears some resemblance to one of the *Hibbertia grossulariaefolia*. (*Warrington*).—Your plant is the *Atropa physaloides* of Linnæus, and is now known by the name of *Nicandra physaloides*, or blue-flowered *Nicandra*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

NOVEMBER 18th and 19th. WEST OF SCOTLAND ORNITHOLOGICAL ASSOCIATION (Pigeons and Canary Birds). Sec., Thos. Buchanan, 74, Argyle Street, Glasgow. Entries close the 7th of November.

NOVEMBER 19th to 23rd. CRYSTAL PALACE. (Canaries and British and Foreign Cage Birds). Sec., Mr. W. Houghton.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. Sec., Mr. J. Morgan, Bingley Hall, Birmingham.

DECEMBER 28th and 29th. POULTON-LE-FYLDE. Sec., J. S. Butler.

JANUARY 7th, 1860. BRADFORD. SINGLE COCK SHOW. Secs., Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackbrough, Black Bull Inn, Ive Gate, Bradford.

FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). Sec., Mr. W. Houghton. Entries close Jan. 14th.

N.B.—Secretaries will oblige us by sending early copies of their lists.

WORCESTER POULTRY SHOW.

THIS Show was held in the Corn Exchange on the 11th, 12th, and 13th inst., and no building can be better calculated for the purpose. It is a large, square, and lofty building, entirely lighted from the top. It can accommodate almost any number of pens; and while there is every necessary ventilation, no draught is possible. In most cases the pens were placed in single rows on tressles; and when we say the Committee included practised names of note, like Messrs. Archer, Wakefield, and others, we shall give assurance that everything was arranged for the comfort, not only of visitors, but of birds. We know of no Show more

deserving of support than this, from the completeness of all the arrangements and the punctuality with which the birds were returned. An example of liberality was also set by Mr. Kerr, the proprietor of the celebrated China Works, which might be advantageously followed by those who are at the head of any manufacture peculiar to the locality in which a Show is held. This gentleman gave a most elaborate and beautiful vase as the first prize in the Dorking class. He has signified his intention of offering one next year for competition by Game fowls.

Worcestershire is a *Game* county, and it will not, therefore, be surprising to find there were nineteen entries of Black-breasted and other Reds. It was an excellent class, and it is worthy of note that Mrs. Sewell repeated her Crystal Palace exploit by taking first and second prizes. Mr. Archer's third-prize pen was a notable one, but the birds were in moult. The prize-list showed how numerous were the commendations. We have two things to notice—first, that, although being a Chicken Show, it is not necessary cocks should be dubbed; yet, if this operation have not taken place, they show at disadvantage against those that have lost all ornament or superfluity as the opinion may be. The other is, a defect that seems gradually creeping in, especially among the Black-breasted Reds, of showing birds that we can only designate as squirrel-tailed, inasmuch as that appendage is carried upward and forward over the back. The competition in these classes is now becoming so great, that exhibitors must watch their birds, to detect anything that may be dangerous to success. The competition was small in Duckwings and other varieties; but in the latter we were glad to observe a pen of the old Piles—such birds as we have not seen for many years.

Dorkings next claim our notice; and here the effect of Mr. Kerr's liberality was visible, as it brought twenty-eight splendid pens, belonging to all our best breeders, to compete for it. Of these, fifteen appeared in the prize-list. The well-contested reward fell to the Hon. W. W. Vernon, and especial mention is deserved by Lord Sandon and Mrs. Pettat, who were second and third. The White Dorkings were not so good as usual; we missed Mr. Allsop, who has usually been very successful in this class.

The *Spanish* were meritorious, as will be seen by the successful names, and the birds were shown in excellent condition.

Cochin-Chinas were excellent, although some of the chickens were moulting, especially the cocks. We think the improvement in these birds is progressive, and there is an approach now to the beautiful hens and pullets for which formerly Mr. Andrews was so famous. It was a satisfaction to find that in the Grouse and Partridge class there were few or no yellow breasts among the cocks. We should be glad if we could say the same of the pullets; but the yellow tinge still predominates more than it should. We need hardly say there were good White birds. Mrs. Herbert has identified Worcester with this breed. We were glad to see this lady was a prize-taker, although only the second. It is, however, no discredit to be beaten by one's own birds.

We are now brought to the Pencilled *Hamburgs*. Judging from the past, we were led to expect a great display of these birds, but were disappointed. The Golden were better than the Silver, but neither were good. When we look at these birds we are led to think of the man who, finding his blanket did not cover his shoulders, attempted to lengthen it by cutting off the bottom and joining it at the top. Thus every year in these birds we have an improvement, but it is purchased at the expense of some other merit. Pencilled tails have been gained by giving up clear hackles. The rich dark colours of the Golden cock have been neutralised as a point by black tails. Very clear hackles and white deaf ears by faint and indistinct pencillings. Messrs. Archer and Worrall showed us perfect birds two years ago, but success spoiled them. We trust they will set to work again. The Golden and Silver-spangled were unusually good.

The same may be said of the *Polands*; and it is worthy of note that Mrs. Pettat took first and second prizes in both classes. The Black *Polands* were also excellent. We trust next year there will be a *Brahma* class: now they were perforce content to appear among the varieties. Mr. Botham took the prize with a very handsome pen.

The *Turkeys* were excellent in size, purity, and condition. We need hardly say Messrs. Fowler and Williams were first and second for *Geese*—they are so everywhere. It will, however, be curious to note that such practised exhibitors in *Aylesbury Ducks* as Mrs. Seamons and Mr. Fowler should each have a pen disqualified for yellow bills: but it was so. They had then to com-

pete with their other pens; and the usual result—Mr. Fowler first, Mrs. Seamons second. They were not so heavy as the others, weighing 20½ lbs. and 19½ lbs. The *Bouen Ducks* were a most superior class. Mr. Fowler was first and second. His birds were perfect and weighed 18 and 17 lbs. Miss S. Perkins took both prizes for other varieties with *Buenos Ayrean* and *White Call*.

The next class brought us among the land birds again,—*Game Bantams*. Twenty entries of singularly beautiful birds. This breed is now well established and understood, and we confess we are great admirers of it. The Duckwings were the weakest in numbers and quality. The Gold and Silver were not numerous, nor were the Black and White.

SWEEPSTAKES, *Game Cocks*.—Twenty picked birds of the best strains in England entered the lists and made a noble display. After much competition Mr. Archer took first prize with an unusually good Brown-breasted Red. We do not think this is the last prize he will win. Mr. Horton was second, and Mr. Moss third. The last bird was a very good one, but his condition was not equal to the others. Messrs. Rodbard, Peters, and Tomlinson were successful for *Spanish*, *Dorking*, and *Cochin China* cocks. All these birds were capital. Colonel Clowes for *Poland*, and Mr. Carter for *Pencilled Hamburgs*, also very good.

Then, to conclude, the *Game Bantam Cock* class. Seventeen entries. Nothing could exceed the beauty of many of these birds; and we were glad to see the adults as small, smart, and clean-feathered as their younger competitors. Messrs. Rodbard, Camm, and Burgess may be proud of their success.

This brings us to the close. We rank the Worcester meeting of 1859 among the pleasantest we have attended. We were also pleased to find the increase there unquestionably is in the love of the pursuit. Setting aside the smaller meetings, every one was full of talk and preparation for the Birmingham, Liverpool, and Crystal Palace Shows. All, ourselves included, heartily thanked the Committee for the treat they had afforded us, turned our backs on the Show with regret, somewhat alleviated by the assurance of our urbane and indefatigable friend, Mr. Griffiths, the Secretary, that he hoped to see us next year.

The Judges were Mr. Baily and the Rev. R. Pulleine.

PLUMAGE OF DUCKWINGED GAME COCK.

BEING an amateur breeder of that noble bird, the *Game cock*, from my infancy, likewise being descended from a line of ancestry zealous in the same fancy, I flatter myself that I possess a little more knowledge than most breeders of the present time that breed them exclusively for exhibition.

I have noticed a growing controversy amongst exhibitors, also in the columns of your paper, with respect to the Duckwing *Game Cock*. That name is too meagre for them, because there are two distinct varieties. What your correspondents call "the maroon or copper-back," should be called a "Black-breasted *Birchin Duckwing*." A Silver should be styled "Black-breasted *Silver Duckwing Grey*."

I always give the preference to the *Birchin Duckwing*, because he is, in general, the shortest and best feathered. The Silver is longer in feather, soft, and woolly.

If you think this information will be of any service to your correspondent "ONE WAVERING BETWEEN TWO OPINIONS," you are quite at liberty to publish it.—D. P., *Hull, Yorkshire*.

PURITY OF COLOUR IN GAME FOWLS.

I PERCEIVE that my remarks respecting the colour of Duckwing *Game* have drawn the attention of some of your correspondents; and I am pleased to find such is the case, as from a fair discussion of the subject good must necessarily arise, and most likely the truth will be elicited.

IN THE COTTAGE GARDENER, of October the 11th, the "PURCHASER OF THE BIRD" asks, "Is it possible that I object to copper, or maroon-back, as a defect in a Duckwing?" In reply, I answer, I do object to such as a Duckwing.

In your editorial note you say, "We consider the copper-saddle quite correct." Now, with your choice, or preference, I have nothing to do, but I submit the question to the common sense of fanciers. Can a Duckwing, bearing in its colour the marks of mixture with the Reds, be considered a pure or unmixed colour, any more than a white fowl having red on the back could be called a pure or unmixed white? To Mr. C. G.,

Read, I reply, he has misunderstood me—a mixed or impure colour may be equally a pure-bred Game fowl, still not a pure colour; and, I admit, that symmetrical elegance and high animal courage, are the properties of all sub-varieties of Game fowls, but have nothing to do with purity of colour. His old woodman might have backed his favourite Red Duckwings in the cock-pit, and in the main come off without much loss; but that would not prove Red Duckwing to be an unmixed colour. However, his illiterate old woodman would have been the last person I should have applied to, to solve a question in the natural history of Game fowls.

Your editorial remarks on my reply to "ONE WAVERING BETWEEN TWO OPINIONS," at p. 30, are not to the point. I have never stated that colour was indicative of purity of breed. What I did state, and what I maintain is, that a mixed colour is not a pure colour. Because the copper-saddled Duckwings are more numerous than the clear-backed Duckwings, does not in any way prove the former to be unmixed colours.

Again, you say, "The manner in which they may be produced is immaterial;" but it seems to me that it is of great importance, for a bird produced between a Duckwing and a Red cannot consistently be held as a pure Duckwing.

I cannot, however, conclude this without noticing your candid acknowledgement of your error respecting the impropriety of the term Brassywinged Blue, as applied to a Red Dun. We are all liable to make a mistake, but it is not every one that will admit it; and I trust when you have reconsidered the case respecting the Duckwings, you will not again misinterpret me, but acknowledge that a bird bred from a Red and a Duckwing cannot be a pure colour.

I fear some of those who may write on this subject having Red Duckwings may be personally interested; but to such I say, enjoy your own choice, I am no judge of other men's fancies or preferences: all I say is, that a mixed colour is not a pure colour. Indeed, it seems to me so plain, that I am surprised any one should attempt to dispute it.—B. P. BRENT.

SADDLE OF DUCKWINGED GAME COCKS.

HAVING written the paper on Duckwings signed "ONE WAVERING BETWEEN TWO OPINIONS," I must tender my best thanks to Mr. Read for his interesting correspondence. Sure am I that neither Mr. Read nor myself will ever take advantages of the inherent pugilistic propensities of the Game cock. Yet I must confess that the old woodman touched a responsive chord in my breast, as well as in his, when he praised the "warmint look" of Game fowl. Still, however, I cannot let him off with the idea that Silver-saddles wholly want that look. The cocks which I have seen, I must confess, are a little clumsy, still very beautiful; the hens are out-and-out gems. For my own part I prefer the copper to the silver saddle; but, like Mr. Brent, I know for a fact that they can be produced from a Black-breasted Red cock and the so-called Silver-saddled Duckwinged Game hen; I thought they were a cross—that was my only objection to them. I have seen ash-coloured hens matched with the Copper-saddles. How could that be?—H. M., Glasgow.

[It will be tedious as a thrice-told tale when we repeat that the Copper-saddled Duckwings are a true and pure breed, and an old one. It proves nothing to say they may be produced by a cross between a Black-red and a Silver Duckwing. We know almost any bird may be made, but they will not reproduce their like. The manufactured birds of which you speak will breed Silvers and Black-reds, some few Duckwings; but the true Copper-saddle never throws back to a Silver. We have seen yards full, all true to a feather, and they have been so for generations. Look at the old cockfighting pictures as the pictures of Game cocks: you will find the Copper-saddle; and they are true and good in the pit as they are handsome in the yard. The hens you mention were probably a desirable cross for fighting purposes.]

APIARIAN NOTES.—No. IV.
NOVEMBER.

MY HONEY-HARVEST.—In THE COTTAGE GARDENER of Oct. 11th a correspondent, "B. B.," has favoured us with the results of his experience as to the honey-harvest of this and of past seasons. Such reports are highly interesting and useful; and I hope that other apiarians will follow so good an example, that we may be able to draw comparisons between various districts.

Having promised the Editor a paper on this subject, I cannot do better than carry out my intention without further delay; and "B. B." will see, either that his district is a poor one, or that there is some radical defect in his mode of management. His statement leads me to infer that the bee-pasturage of the district is the most at fault. My apiary at the commencement of this year consisted of nine stocks in various kinds of hives—all, with two exceptions, strong and prosperous. These were subsequently increased to sixteen hives by the addition of swarms, either purchased or from my own colonies. Below I give the results of each separately:—

ESTABLISHED STOCKS.

No.	Description.	Remarks.	Nett wgt. taken.
			lbs. ozs.
1	Cottage hive...	Nethered, Taylor's plan.....	11 0
2	Cottage hive...	Bees driven out for artificial swarm	0 0
4	Flat-top straw	Stewarton Supers two boxes (also threw off a fine swarm)	24 0
6	Box hive	Straw hive and brood comb of No. 2, put on after bees were driven out	15 0
7	Adjuster hive	One super of purest possible honeycomb...	52 0
8	Cottage hive...	Swarming being delayed, a nadir was given	8 8
9	Flat straw hive	{ Stewarton super—pure honey 39 lbs.... } { Nether box of No. 1 put on as a super } { and sent to the heath, 1½ lbs. }	40 8
10	Cottage hive...	Bell-glass (also threw a swarm)	15 0
11	Cottage hive...	{ 1st. Octagonal glass box 28 lbs. } { 2nd. Do. do. 17 lbs. }	45 0
			211 0

NEW SWARMS.

No.	Description.	Remarks.	Nett wgt. taken.
			lbs. ozs.
2	Stewarton box	Artificial swarm. Bars removed. (Since filled up, and stocked with a Ligurian queen)	8 8
3	Globe observatory.....	Very heavy.....	0 0
5	Stewarton box	Bars removed. (Since filled up)	4 8
12	Cottage hive...	Purchased swarm. Octagon glass from the top. Beautiful comb	25 0
13	Cottage hive...	Purchased swarm; a very small one; now very strong and heavy	0 0
14	Unicomb observatoryhive	A moveable top of. Single comb taken.....	6 0
15	Stewarton box	Swarm from No. 10. Bars removed. Empty spaces filled up	6 0
16	Cottage hive...	Late swarm from No. 4, June 22nd. Increased 22 lbs. nett in four weeks' work...	0 0
			50 0

Net weight taken from swarms 50 lbs.
old stocks 211
Honey from "No. 6." Bees driven and united 22
283

With one exception all the hives remain very strong and heavy. From the above total of 283 lbs. must be deducted 15 lbs. of dark run honey, taken from No. 6, and given partly to No. 11, to enable the bees to seal up some cells which were filled, but remained unclosed in the second super at the end of August, and partly to No. 4, which, owing to its throwing off a fine swarm, as well as filling a super of 24 lbs. weight, was rather impoverished.

The greater portion of the honey taken was of a remarkably fine quality, particularly that which was collected subsequently to the 20th of June.

THE ADJUSTER HIVE.—The largest quantity taken from any hive was from the "adjuster"—a single box containing 52 lbs. nett (the greater portion of which was collected in four weeks) of virgin comb of beautiful quality. I gave a description of this hive in THE COTTAGE GARDENER in April last. It has this season fully sustained the character then ascribed to it.

SUPERING v. NADIRING, OR NETHERING.—Nos. 1 and 8 were very strong cottage hives, and were both nadired, or nethered, giving in comparison with my other stocks but very insignificant returns. In the case of No. 1, Taylor's nether hive was used. The bees, though very numerous, were a long time in making up their minds to descend into the nether to work, notwithstanding guide-combs were placed therein; losing very valuable time when other stocks were increasing rapidly. At length they nearly filled the box with comb, by no means very white, and mostly empty; nett weight being only 11 lbs., and hardly any of that

sealed over. This was taken away early in August, placed as a super on No. 9, and sent to the heath, coming back $1\frac{1}{2}$ lb. heavier, and all, or nearly so, sealed up. Had this same or a larger box in the first instance been put on the top of the hive No. 1, I have no doubt but that the result would have been at least 40 lbs., instead of 11 lbs.

From No. 8 a swarm was desired, but as the issue was delayed until I had had all I required, it was raised on a nadir on the 7th of June. This also was filled with combs, some of which were used for brood, and contained only $8\frac{1}{2}$ lbs. of honey.

These two cases strongly confirm my previously conceived opinion, that, except under certain circumstances, the nading, or nethering, system of working hives is a very erroneous one.

ARTIFICIAL SWARMS.—I have to thank "B. & W." for his courtesy in so promptly replying to my request, that he would favour us with the results of his experience this season, with his artificially-made swarms. His success seems to have been undoubted. There has never, within my recollection, been a summer when the formation of artificial swarms might have been so beneficially adopted as the past; natural swarms having been particularly uncertain in their appearance; some coming forth very early, and others wasting the whole or greater part of the summer in vain threatenings. Two of my stocks that were left single for the purpose, though populous enough, did not choose to emigrate, and two others, which were filling supers and had plenty of room afforded them, threw off fine colonies.

I intend to adopt this principle of forcing swarms more frequently in future. One of my stocks is tenanted by a Ligurian queen, and I shall rather depend on this mode for securing the increase of this species, than by running the risk of natural swarms flying off altogether.

REMOVING HIVES TO THE HEATH.—It will be remembered by the readers of THE COTTAGE GARDENER, that last autumn, my friend, the "DEVONSHIRE BEE-KEEPER," and myself, removed some of our stocks to the heather. The results of our experiments were then satisfactory; though late in August when transferred there, they all showed an increase in weight of from 6 lbs. up to 12 lbs. But this season, although we removed our bees a fortnight earlier, with, on the whole, finer weather than they experienced last year, the increase by the middle of September was very trifling. Two of my stocks weighed $2\frac{1}{2}$ lbs., and another $4\frac{1}{2}$ lbs. more than when placed there; but the fourth returned precisely the same weight, although the super (the late nether-box of No. 1), weighed $1\frac{1}{2}$ lbs. more, besides a tolerably large surface of comb being sealed up, the stock, of course, being somewhat lighter. My friend's two stocks exhibited rather a larger gain than either of mine. We can only account for our comparative non-success, by the long-continued dry and hot weather, which hurried the heather into flower, and prematurely scorched up the blossom, as it appeared as much faded on the 29th of July, as in the middle of August of the preceding year. I should be obliged if any other correspondent could favour us with the result of his experience in this matter, as it would seem quite uncertain whether any benefit, or otherwise, is to accrue from the change, particularly when the expense and trouble of removal, which in my case are both considerable, are taken into account.

AUTUMNAL MANAGEMENT.—Without further delay all hives should be weighed, and if less than 15 lbs. nett must be fed up to that point. Most authorities give 20 lbs. as the minimum of weight; but I am convinced that, unless the stock is very old, the lesser amount named above will carry a hive through until the spring; when a little food then judiciously supplied will prove more beneficial than giving a larger quantity of syrup in the autumn. Those of my stocks which were periodically weighed last winter consumed from $5\frac{1}{2}$ lbs. up to $7\frac{1}{2}$ lbs., as near as I recollect, from the 1st of October to the 1st of March. Still let every one be on the safe side: it is better to give too much than too little at this season. But I have been informed of a lady in Scotland who regularly every morning after breakfast, all through the summer, as surely as she feeds her cats, visits her hives and administers a small portion of syrup to each. My informant stated that the bees were always very idle-looking, and that she never obtained an ounce of honey.

It is the practice with some apiarists at this season to break up their hives from their floor-boards and clean them; but it is not to be recommended. The bees have well cemented all crevices, to exclude damp and currents of air; so this operation must be deferred until spring.

Nothing else need be done to hives at this period further

than contracting the doorways, and seeing that every hive is properly covered up, so as to be perfectly safe from the possibility of becoming wet, and perfectly secure from the liability of being overturned by the winter gales. By want of care in this latter respect many a bee-keeper passes an anxious hour during a midnight storm, fully expecting to find in the morning certain of his hives blown over and destroyed, which he is conscious he has not carefully secured.—S. B. Fox, *Exeter*.

POULTRY AND PIGEON SHOW

IN CONNECTION WITH THE COLLINGHAM FARMERS' CLUB.

THIS Show was held at Collingham on the 18th inst., and was numerously attended. There were above 200 pens.

The Judges for Poultry were T. Challoner, Esq., of Worksop, and R. Chase, Esq., Birmingham. For Pigeons, R. Chase, Esq., and W. Dolby, Esq., Grantham. Their awards were as follow:—

SPANISH.—First, — Brabazon. Second, W. Dolby. *Chickens*.—First, Lord E. Hill. Second, W. Dolby.

DORKING.—First, W. Dolby. Second, Lord E. Hill. *Chickens*.—First, W. Dolby. Second, — Spafford.

COCHIN-CHINA (Buff and Cinnamon).—First and Second, J. Staley. *Chickens*.—First and Second, J. Staley.

COCHIN-CHINA (any other colour).—First and Second, J. Staley. *Chickens*.—First and Second, J. Staley.

GAME (Black-breasted Reds).—First and Second, R. Swift. *Chickens*.—First and Second, J. Camm.

GAME (Duckwings and other Greys and Blues).—First, J. Doncaster. Second, — West. *Chickens*.—First, R. Swift. Second, J. Bradwell.

GAME (Whites and Piles).—First and Second, J. Camm. *Chickens*.—First and Second, J. Camm.

HAMBURGH (Golden-spangled).—First, E. Cope. Second, G. Daft.

HAMBURGH (Silver-spangled).—First and Second, J. Camm.

HAMBURGH (Golden-pencilled).—First, Rev. S. R. Hole. Second, G. Daft.

HAMBURGH (Silver-pencilled).—First and Second, J. W. George.

POLAND.—First, G. W. Boothby. Second, Rev. S. R. Hole.

ANY OTHER DISTINCT VARIETY.—First, J. Camm. Second, — George.

BANTAMS (Laced).—First and Second, R. Perry.

BANTAMS (Black).—First, R. Hawkesley. Second, Rev. S. R. Hole.

BANTAMS (Game).—First, R. Hawkesley. Second, J. Camm.

BANTAMS (any other variety).—First and Second, J. Staley.

DUCKS (Aylesbury).—First, J. Camm. Second, W. Dolby.

DUCKS (Rouen).—First, G. Daft. Second, Lord E. Hill.

GRESE.—Prize, G. Daft.

TURKEYS (Norfolk).—Prize, R. L. Abbott. *Poults*.—Prize, Lord E. Hill.

TURKEYS (any other variety).—Prize, W. Dolby. *Poults*, J. Smith.

PIGEONS.—*Almond Tumblers*.—Prize, — Oates. *Owls*.—D. C. Brierley.

Powells.—Prize, G. W. Boothby. *Jacobins*.—Prize, R. Swift. *Turbits*.—Prize, J. Bridger.

Balds.—Prize, T. Hives. *Fantails*.—Prize, — Oates.

Mottles.—Prize, — Oates. *Trumpeters*.—Prize, — Oates. *Any other variety*.—Prize, — Oates. First, G. W. Boothby (Victorias). Second, R. Swift (Frillbacks). Second, T. Hives (Beards).

OUR LETTER BOX.

POLANDS AT THE WOODSTOCK SHOW.—In your report of the Woodstock Poultry Show of September 27th (copied from the *Oxford Journal*), it is stated that Mr. J. K. Fowler, of the Prebendal Farm, Aylesbury, "whose knowledge and experience of the feathered tribe have gained him a world-wide reputation," acted as Judge. Mr. Fowler may be a judge of some varieties of poultry, but his decision at the Woodstock Poultry Show proved him to be unacquainted with the Polish breed of fowls, of which there were only two pens for competition. Mine, which were the White-crested Black of the purest breed (the parents of which I purchased of Mr. J. Baily, Mount Street), to these Mr. Fowler awarded neither prize nor commendation. The other pen, which were mongrel chickens, entered as Silver-spangled Polands, but destitute of the characteristics of that breed. To these Mr. Fowler awarded a "second prize." No first prize being given to either pen. As the varieties of poultry are now so generally recognised (and that I have kept the different sorts for fifty years), I cannot but express my surprise at the decision.—G. W. ST. JOHN, *Rector of Woodstock*.

DORKINGS DYING SUDDENLY (E. S.).—They die of apoplexy. Feeding them three times a-day on oats and barley makes them too fat, and a vein bursts on their brains. Feed them in the morning with oats and barley alternately, and at night with soft food, such as fine pollard and boiled potatoes. Feed them very moderately, and omit a mid-day meal altogether.

HACKLE OF SILVER-SPANGLED HAMBURGS.—I have nothing to do with old rules, but I constantly see Silver-spangled Hamburgs with striped hackles and clear tails. Let those who are in doubt, visit Birmingham next month, and they will see that they are possible in practice, and that breeders may go on without being doomed to the disappointment to which Mr. Brent condemns them.—HE WHO WROTE THE ANSWER.

POINTS IN ROUEN DUCKS (J. Choice).—The drake's bill in Rouen's should be of a greenish yellow. That of the Duck, a dull-brown in the centre, tipped and edged with yellow. This latter colour is not so distinct in young as in old birds. Green, blue, and leaden bills are inadmissible for Ducks, and we have never seen a Wild Duck with either of these colours. To judge from Wild Ducks—and that is the only correct standard—the birds should really be wild ones, not tame-bred; and if they are dead they should be fresh. The colour changes and the bill becomes dry and shrivelled after a Duck has been dead some time. It is then an unsafe standard.

SPANISH CHICKENS AT THE CRYSTAL PALACE.—The owner of the pen of Spanish chickens at the Crystal Palace, said by Mr. B. P. Brent to contain two cocks, is earnestly entreated by "XERES" to settle the question at issue. They were in pen 22, and "XERES" will not admit his error, and is sure they were cock and pullet.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	NOVEMBER 1—7, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock afterSun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
1	TU	ALL SAINTS.	30.258—30.355	40—27	W.	—	55 af 6	33 af 4	28 a 9	6	16 17	305
2	W	Erica autumnalis.	30.369—30.292	46—24	N.E.	—	57 6	31 4	40 10	3	16 18	306
3	TH	Erica hyemalis.	30.318—30.246	52—31	E.	—	58 6	29 4	51 11	8	16 18	307
4	F	Erica linnæoides.	30.231—30.173	58—40	E.	.01	VII 27 4	27 4	morn.	9	16 18	308
5	S	GUNPOWDER PLOT, 1605.	30.163—30.116	57—36	N.	—	2 7	25 4	2 1	10	16 16	309
6	SUN	20 SUNDAY AFTER TRINITY.	30.288—30.228	52—35	N.E.	—	4 7	24 4	12 2	11	16 14	310
7	M	Habrothamnus elegans.	30.355—30.309	48—36	N.E.	—	6 7	22 4	24 3	12	16 12	311

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 53.1° and 38.2°, respectively. The greatest heat, 65°, occurred on the 1st, in 1854; and the lowest cold, 22°, on the 4th, in 1845. During the period 113 days were fine, and on 111 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

Now that the dull, foggy days and sharp frosty nights have arrived, it is necessary to keep all plants that have finished their growth free from excitement, and rather dry at their roots. A gentle fire to be applied during the day, which will allow the advantage of a free circulation of fresh air, and, by closing up early in the afternoon, will retain sufficient heat to resist the encroachments of ordinary frosts during the night. But if the frost should set in severely, night coverings, if possible, should be applied in preference to fire-heat.

AMERICAN PLANTS, &c.—Pot, if not done, Rhododendrons, Kalmias, hardy Azaleas, Lily of the Valley, and other plants usually required for winter forcing.

CHRYSANTHEMUMS.—They will require an abundance of air to prevent the flowers expanding weakly. Keep them well supplied with water, and the leaves in a healthy state; for a great portion of their beauty depends upon so doing. They may sometimes be seen almost entirely denuded of leaves when in flower, which considerably detracts from what should be their ornamental appearance in the greenhouse or conservatory.

PRIMROSES (Chinese).—Give a few of the strongest and most forward a shift into larger pots. The double varieties are very useful for cutting where bouquets are much in request, as they do not drop the flowers like the single varieties.

STOVE AND ORCHID-HOUSE.

Great caution will now be necessary in the application of atmospheric heat and humidity, as an excess of either will cause a premature and unseasonable growth which no after-care could thoroughly rectify. The thermometer for the majority of stove plants need not at any time of the day exceed 60°, with a fall of 8° or 10° during the night.

BEGONIAS.—They deserve a place in every stove, as they are plants of easy cultivation, and bloom at a season when flowers are scarce; they can also be introduced to the conservatory or sitting-room when in bloom.

FORCING-HOUSES.

HOTBEDS.—Keep up the heat of dungbeds by adding leaves and dung to the linings; but not sufficient of the latter to cause a rank steam in the frames.

PEACHES.—If any vacancies occur in the late houses they should now be filled up. We have before recommended trees of large size to be taken from the walls for this purpose, but in so doing care should be taken to select such sorts as the *Murray*, *Elruge*, and *Violette Hâtive* Nectarines; *Noblesse*, *Royal George*, *Grosse Mignonne*, and *Chancellor* Peaches, being the best adapted for forcing. Some sorts are of little value as forced fruit, although they may bear abundantly.

PINES.—Coverings to be used, and as little fire-heat as possible, to keep up the required heat during the night. The heat of the spring-fruited and succession-houses to

be gradually decreased, so that it may range from 60° to 65°. The winter-fruited plants to range 10° higher.

VINES.—The Grapes will require unremitting attention to keep the house dry, and to cut out the decayed berries. It will, we suppose, be generally observed that the fruit that was ripe before the wet weather set in will keep better than the more backward ones, which may be a useful hint “to make hay while the sun shines,” or, in other words, to ripen the fruit in good time. Prune and dress the Vines in the succession-houses as recommended for the early ones. When Vines have been taken out of the house they should be protected from the vicissitudes of the weather, as they are sometimes greatly injured by being exposed to excessive wet and severe frosts.

WILLIAM KEANE.

FROSTED GRAPES, AND FROST-NIPPED PLANTS.

WHEN I was recording last week the triumph of a scientific amateur, Capt. Hopkins, of the East India and China trade, over your humble servant in the matter of growing Grapes out of doors, I little expected a more severe trial and strain on the judgment, which is founded on a long life of practice; nor that the elements would favour the progress of a man thus going down in the world against his will and his power. To be the first in a village, rather than be the second in Rome, is not more lawful for ambition than it is wise and politic to give up the village with a good grace when one has lost it in a fair-fought battle. But for one weatherwise to be frosted out of Grapes just at the moment he failed on the field of fame, is as much as flesh and blood can hold up against and be in good humour. If I had done as the Horticultural Society have acted all along in this matter, and as the Doctor pointed out to me in Willis's Rooms, and set my face against the practice of Grape growing out of doors, and my conscience against my judgment on that point of practice, I might have been now out of a certain fix, and free as the Horticultural to undertake fifty thousand times more than all my readers could expect of me; but I should be less wise than I am by the ordeal, and less able to give a cordial hand and a warm support to any and all who may aspire to excel me, as Capt. Hopkins has done.

Scarlet Runners will stand 10° of frost out in the open air, if they hang in their pods. I have sown them after enduring that cold, and no Runners could come up more healthy, and do better than they. This last frost, therefore, has not hurt a Runner Bean that was quite ripe. Cucumber seed, and Melon seed, and the seeds of all the Gourds which I have seen tried, will stand as much frost as the Scarlet Runners, and be none the worse for it. And if all the seeds of all the stove plants in cultivation were subjected to a fair experimental test of the same kind and degree, I doubt not but ninety-nine kinds out of every hundred of them would give similar results.

A Peach that is once frozen through in August arti-

ficially, and in December naturally, loses its flavour at once, and is good for nothing afterwards. I proved that both ways myself. Apples I have seen frozen as hard as bullets, and they took very little hurt, in flavour, and none in the strength and flavour of the cider from them; but how long they would keep after being so frosted I know not. How many degrees of frost a bunch of ripe Grapes will stand, and yet be fit for table, is, probably, not known to many British gardeners. I did not know how many degrees last week, but 10° , I am now in a position to assert, will not do the slightest harm to bunch, or berry, or bloom, or footstalk; the latter and the stalk of the bunch being much more tender and susceptible to frost than the berries. If the bunch is dry, the said stalks will just bear out against 10° of frost, and no more; 11° spoil their appearance, and 12° kill them, but not so as to cause the berries or Grapes to fall off them.

I had over forty bunches of fair average Grapes of the *Esperione* under that trial on the morning of the 24th of October, 1859, and the Grapes are still as good as they were before that severe and early frost. So we gained something by it. Seven degrees of frost, or less, killed every Vine leaf that had life in it, the footstalks going with the blade flap down, but not separated from the wood; the hinge which holds the stalk to the branch was not sufficiently ripe to part at the sudden fall of the leaf by frost.* Every particle of the unripe wood about the Vine was killed by the 10° of frost as completely as the green shoots of the Scarlet Geraniums, and the very green wood just as soon as those of the Geraniums; for there was a large box of Scarlet Geraniums on the side of an upper window, with the Vine and the Grapes on each side of it. Some standards of these same Geraniums, which were three years old and upwards, are not killed in the old wood by the 12° of frost; but they had been very dry at the roots for some time. Seven degrees of frost killed one of my best plants last spring that was thirteen years old, and much harder in the old wood than the present plants; but then it was in active growth, and full of sap; also, was then regularly watered. All this shows that old Geraniums, with all the green wood cut out of them, and being dry at the time, will stand 7° of frost without being killed. It would depend on the after management, however, whether so much would injure them or not.

One box of Cyclamens at the bottom of the garden was left there unprotected the first night of the frost, when there were 5° of it. The leaves thawed the next day, but were drooping. I left them the second night: as they were duplicates, I could afford to lose their leaves without a grudge, in order to see how much frost they could stand. They were all seedlings from *Persicum*, but by different parents or fathers. The second night scored 7° full, and the Cyclamens looked "done up," the soil being as hard as a board. Then I put a five-dozen wine hamper over the box, and covered the hamper, so that a winter's hardest frost could do no more damage; and on Tuesday forenoon, as soon as the change of weather was unmistakeable, I unburied and unpacked the hamper, and you never saw such pert, pricked-up ears, as those beautifully-marked leaves of these entombed Cyclamens presented to view, as if nothing had happened. Yet the soil was still nearly as hard as when the box was covered. If there had been no thaw this box would remain frozen, dormant, and quite safe till next Christmas. Actual frost, if only one or two degrees of it, and absolute darkness, with no more frost, are as safe for keeping bedding plants for weeks together as hot water is in the hands of some people. When there is the appearance, therefore, of a continued frost, all the pits and frames and lights, which are kept by mere coverings, should be left

uncovered the second or third afternoon till the glass is well frozen; then cover as I did my Cyclamen-box, and do not uncover again till that frost is quite over, if it last a month—at least not more than to look in from time to time to see that the frost is not getting a-head inside, and till two or three days after the frost, if the sun is out; but as soon as possible if there is no sun, or likely to be that day. Then give a large current of air top and bottom of the lights, first turning every one of the lights upside down to dry them off before shutting-up time in the afternoon. Frost within bounds—that is, anything from 32° , the freezing-point, down to 29° , or even 28° , is much more safe for the keeping of bedding plants than sweating-like on the leaves, glass, and frames through sun heat and damp from stingy ventilation. Sooner than see my plants in this dew, as if of a morning at Mushrooming in the fields, I would have all the lights off and wiped dry. I would also out with the plants; at the same time scrape off the surface of the sand or ashes, wipe round the sides, and put on a dry surface of dusty ashes: then take the pots in their order of the tallest plants next tallest, and the lowest in front, and would wipe the pots as dry as a teapot, look out for worms and bad drainage and for pot-bound roots, which, to save watering and messing for a long while, I would double-pot—that is, put such a pot inside one just one size larger, in order to keep the roots from needing so many waterings in such weather.

With fire and hot water there is no fear of damp. The great evil is often too much of a good thing—making or forcing on growth in the dead of winter for no earthly use but to be sure to give a world of trouble in the spring, when every leaf is liable to blights and flies; and the plants so gentle and so delicate, as it were, that the proper amount of ventilation would send them on their beam ends in a twinkling.

We noticed a deep pit in Capt. Hopkins's garden, with a moveable bottom of open woodwork to stand the pots on. It rests on blocks of different sizes, according to the time and season. In winter it is deep down in the bottom of the pit, and a Joyce's stove, with prepared fuel from Mr. Joyce himself, is put in at night, and has answered well for some years; but when the frost is very hard he leaves the eighth of an inch open of the light under which the stove is placed for fear of too much foul air from the working of the stove, and he never loses a leaf. Another thing we saw there, and which the great pomologist highly prized, was a new (to us) invention for keeping flues and hot-water pipes from playing havoc with pot plants over them by drying them faster than one could water them—a sad mischief, and almost worse than frost in some cases, where there is no great distance between the top of the pipes or flue and the bottom of the open woodwork stage on which the pots stand. The stages stand on brackets let into the front wall; the leg of each bracket slopes down from the front of the stage to near the pipes, and rests in a notch in the brickwork of the front wall. Now conceive all these sloping legs to be rafters for something else, and you have the plan in a moment. We all know how things slide up and down on rafters, and how rafters are parted in the middle for things to slip up and down on each side of each rafter; glass for light, canvass for shade, and wood to block out the heat of the pipes or flues from the bottom of the pots, and that is the thing. Very thin wooden sliding-lights work up and down each side of these legs of brackets when they are quite down. All the heat as it rises must work up under these wooden lights, or shutters, right into the path first, then all over the house; but in very hard weather the frost might kill plants next the front glass, and the heat scorch as it escaped up by the side of the row of plants next the path: hence the necessity of sliding the shutter. In smart frost draw up the shutter four inches, say; and a column of heat four inches across rises up against the front wall, front glass, and behind

*The same frost killed every leaf on the *Black Hamburgs* in an orchard-house near Winchester; but the leaves on two *Black Champions* growing among them remain entirely uninjured. This more hardy and very superior Grape is not so much cultivated as it deserves to be.—Eds. C. G.

the plants on the stage; and just behind these plants is the hottest part of the house, while the pots and plants all over the front and end stages are as cool as a Cucumber. Nothing so simple could be contrived, or even thought of, nor of so much practical use, where half the world might pass and not know better than that danger or no danger could happen in such cases.

But, about the frosted Grapes and the Pomological. The Captain's Grapes are sure to be at the Meeting on the 27th; but my love of experiments would not bear to have one of the bunches covered or taken in from the frost. The question is still undecided whether I shall send any or not. If I do, it will be more to let the Society know that 12° of frost do not hurt the flavour or appearance, if the Grapes are in the dry, in the smallest degree; but a heavy rain, day and night, coming on the heels of the frost, washed off the bloom completely. For, as the Grapes have been already judged, and I have owned the judgment to be according to fact and merits, no more can be done in the matter this season. Next year, if all be well, I shall put up for White Grapes; and as black is not white, I do hereby challenge all England, the whole of Ireland, and the south-west of Scotland to try a tilt against me before the British Pomological Society at their first October meeting: and if any sea-captain or land-manager will beat me in White Grapes grown out of doors without "tricks," I must turn over another leaf, make better borders, and grow nothing on them but the Vines themselves. It was my confidence in my practical powers that brought me to my knees, and nothing else; but this, the first instance of my ever yielding the reins to a rival, may do more good for out-door Grapes and for the British Pomological Society than all my powers of practice put together in a lower part of the field.

The next question will be, How, or by what means, are we, the hardy Grape growers, without tricks to guard our walls from flies, frosts, and foul weather late in the autumn? Captain Hopkins with his nautical experience and scientific knowledge of the weather, keeps the best glasses constantly in use, for guidance, the best registering thermometers, the truest barometers, and the most recent improvement on the sympesometer, an instrument which was invented in Edinburgh about the time of the Burke murders (1828), to foretell more true than the barometer such storms and sudden changes of weather, as the late change from summer to widwinter, in a few hours. With these, and a good practical eye to windward, he has always prepared for any change of weather. Old gardeners are generally good judges of the weather; and I judge that Grape Vines on a west wall, like mine, are hardly on an equal footing with those on a south wall, by being more safe under glass all the winter, as my White Grapes must be in future. Another thing will be against them if it be an early spring—they will break into leaf before they can be trained in the upright position, and the glass will not be left over them one day longer than the Geraniums can do without it, for they pay for their keep and mine too; while the Grapes are merely on trial and for amusement, and I must take them down, prune them, and train the shoots for next year on the four feet of the wall, which is the back of my Geranium-pit, and where I grow half-hardy bulbs. When I recommended such another pit across the end of a house, at p. 48, I did not take it into the account that Vines, or other fruit trees, or ornamental climbers, might be growing against that end of the house, or any of the sides of a house, that might be so used for winter store, and not be seen or thought of in summer. But it matters not; covered with trees or climbers, it will do just as well as bare bricks, open stone, or stucco walls.

Fix upon a course of bricks anywhere from three to five feet out of the ground, according to the length of your spare lights, keep to that course in putting in the wooden plugs, and put them in a yard apart, more or less. As the cross course of headers come in, all the plugs

should be in the cross course, and the top of them ranging in the horizontal course. The plugs are of inch stuff, Oak or best red deal, wedged at the end and two inches wide. Cut out the mortar with a cold chisel to let in the wedge-end of the plug, and let the other end stand out from the wall, as much as to clear the stems and branches of the trained plants on it, and no more; then nail the back rail to the ends of the plugs, and a "coping" over the rail, and the back end of the lights can be nailed on; and the space between the back of this coping and the top of the rail and between the shoots, is to be stuffed with moss or straw, and the whole may be removed in May for the summer. That is just how my Vine-border for the white Grapes is to be a winter pit for half-hardy plants, for keeping Geraniums, and for Vines and cuttings in summer. Cuttings cannot much hurt the Vines, and bulbs and Cyclamens will do them no harm. My labour will be as nothing compared with that by having so many plants in pots to look after. The strain on fixed lights will be trifling, and no mode of giving air is so good as that by moveable cappings between each pair of lights. I would much prefer that way for orchard-houses, after seeing what Sir Joseph Paxton has done in his own garden at Sydenham. Any of his new cheap houses might be removed in one day from one part of the garden to any other part, by any two men who could turn a thumb-screw. His latest and best plan is a six-inch opening from top to bottom, between each pair of lights, and that opening is capped with a single row of glass up the centre, and working on hook-and-eye hinges for giving air. The bottom of his sashes reaches the ground; the legs of the sashes, so to speak, are two inches longer than the usual run, and that is for them to rest against the side of a gutter of the form of the letter V, the bottom of the light resting on the near-side of that gutter. The gutter is of the length of the house, with a little incline to one end to let off the water; and the way the gutter itself is fixed to the ground, or rather on the ground, does away with all disputes about fixtures between landlord and tenant. Cross blocks of wood about eighteen inches long are first fixed to the ground, and on these the gutter rests, and is held fast by "cradles," as the rails are fixed to the sleepers on railroads.

Then, let the worst come to the worst, the Lord High Chancellor himself could claim no more, as a landlord, than the cross blocks aforesaid; and a span-roofed house of any length is thus set as firm as the South Western Railway itself, without a single truss, stay-bar, plate-ridge, or anything. Such a house may stand the first year at an angle of 45°, the next it may be set at 30°, and for the next fourteen years it may go up or down one degree, or not, as you please. My border-pit represents one side of such a house on the smallest scale, and with a slight difference as to a fix. Any quantity of spare lights could be put up against any wall for temporary use in the same way, or they could be set in pairs against one another, with two thumb-screws at the two upper corners to hold them fast; and if their footing is sufficiently secure, be it a gutter or a sleeper, the two will stand any wind. Then the next pair up in the same style, and two, three, or four up to six inches apart, and that apart to be covered with a wooden or glass coping, and hinged, hook-and-eye way, on one side, outside, and fastened with a hook and staple on the inside to the opposite light; it will brace the two pairs of lights together, and when all the pairs are up, nail a coping, or narrow capping, along all the tops and the job is as complete as possible.

One of Sir Joseph Paxton's orchard-houses was filled, at the end of last March, just as Mr. Errington and Mr. Fish would do it, each of them for "his own self," and every inch of the roof on both sides was full of bearing wood last September. A row of trained dwarf Peach trees planted along each side at the bottom, and another row of "riders," or tall standards, also trained to fill the upper half of the roof. A good crop, in pots, the first

summer, and full of Strawberries and Vines in pots next winter, and who will number the fruit next season?

D. BEATON.

PLANTS NOT FLOWERING.

"'H. O. H.' has kept the following several years without being able to bloom them:—*Blandfordia nobilis* and *Plumbago rosea*." We should have liked the treatment adopted detailed, and then we could have better judged of the cause of failure.

BLANDFORDIA NOBILIS would stand out of doors in front of the wall of a hothouse, in most positions south of the midland counties, if protected by branches or a hand-light in winter. If grown in pots, the soil, as the plant increases in size, should be chiefly loam with a little very rotten cowdung. In summer it can scarcely have too much encouragement as respects manure waterings, &c.; but as autumn approaches the water should be diminished, whilst full exposure to the sun is given. In winter, if the plant is in a pot, it should be kept dryish and cool; and as the days lengthen and more water is required, the Lily-like flower-stems may be expected to appear. The larger and finer the foliage, provided fully exposed to the sun this season, the finer may the flower-stems be expected next season, whether out of doors protected, or in-doors in a pot or tub: the earth in winter must not be dry, neither should it be wet. Most of such plants at that time absorb sufficiently when placed on a moist surface, such as sand, or ashes, a little damp.

PLUMBAGO ROSEA.—This plant requires a cool stove to manage it nicely. After flowering or growing freely this season, it should be pretty well cut down, or pruned in, and water withheld in proportion to the diminished surface. The water should have been curtailed previously, in order that the buds near the base of the shoots may be well ripened. Repot next season as these buds break into little shoots, shaking away most of the old soil, and watering as necessary, and plenty of bloom will come from points of the shoots, in a temperature from 50° to 60° at night, and 70° to 80° during the day. It does little good in a common greenhouse.

"'F. H.' has a nice bushy plant of *PLUMBAGO CAPENSIS* in her greenhouse, but it scarcely ever yields a flower." Perhaps the bushiness, the result of stopping and pinching, may be the reason. This plant also produces its bloom chiefly on the points of the shoots of the current year's growth. Treat it much as you would do a Vine, and you will have plenty of bloom. Get the wood of this season well ripened, and it matters not whether you long-rod or spur-prune, from every bud left that produces a shoot you may expect a bunch of flowers at its point. When once a good plant is well established the easiest way to manage it is, as soon as the blooms begin to decay—say in September, and the same if there is no bloom—give the plant all the air and light possible, and just as much water as will prevent flagging, so as to ripen and harden the backward buds, and then prune each shoot back to within a couple of buds or so of its base, in November, or even earlier. If the shoots from these buds next spring are too numerous, thin them; and if the shoots from which they spring were well ripened, the stronger the shoots of the current year the finer will be the masses of bloom. In a pot it is best to divert the strength into a great many shoots of equal size, so as to have it a mass of flower all over. It will then require a large space; but when pruned in at the approach of winter it will require but little room. It stands well anywhere so that much frost does not reach it.

ERYTHRINA CRISTAGALLI.—"I have had this three years in a large pot, and have not seen it flower." We are rather surprised at this; and can only account for it on the supposition that you must have treated it as if it were a plant that could not be kept too weak. Now, it requires a plant to be three years old to give you a fine mass of bloom; but, nevertheless, there is nothing to stop a young plant blooming when in its second year. This also blooms on the points of the shoots of the current year. The strength of these shoots generally gives proportional strength of flower-spikes. The plants bear heat well, but they do well in pots in the greenhouse, and also out of doors, protected at the bottom of a wall, south of the midland counties. However the plants are grown, they should be pruned down to the surface of the soil, and have a period of rest in winter, by keeping the roots a the fleshy juicy sort of a collar dryish rather than otherwise. When the shoots break from the collar in spring, then is the best time for taking off young pieces three inches long, and inserting them as cuttings. About the same time the shoots should

be thinned, proportioning the number to the size of the collar and strength of the plant. Three, five, or so, for a young plant; and seven, or ten, for a very strong one. From that time the plant will take a fair amount of heat and water, and all the air and sunlight you can give it. The flower-spikes will, ere long, appear; but if not, the shoots must be encouraged to grow strong until September, when all the sun possible should be given in unison, with no more water than will keep them from flagging. As the leaves fall in October or November under this treatment, the plants if in pots may be cut down, and the pots placed anywhere, so as much frost does not reach them.

CLIANTHUS PUNICEUS, AND *PASSIFLORA CÆRULEA*.—"I have not succeeded in blooming. Do they require heat, &c.?" inquires 'R. E. P.' Both of these plants flourish out of doors in warm places in the southern counties. We have seen fine specimens of the *Passiflora* out of doors in the midland counties. The *Clianthus*, however, may be looked upon as a very hardy greenhouse plant, requiring to be protected from a temperature below the freezing point in winter. This secured, the plant should be kept almost in a state of rest in winter, little water being required; and during the winter and spring the last summer's shoots should be shortened. If these had been well exposed to the sun, especially in the autumn, as the days lengthen the young shoots will begin to grow, and by the end of May should be inured to the open air, and will most likely have plenty of flowers; and when they are gone the plants should have as little water in autumn as will just keep them from flagging, and as much sun as they can get. This so ripens the wood of the plant, that after the winter's rest the plants cannot help flowering the following season. Loam and heath soil suit the plant, with good drainage, and manure watering when growing. The syringe should also be freely used in summer to keep red spider at a distance.

The Passion-flower should also be allowed to rest in winter, after having its wood and leaves well exposed to the sun in summer and autumn. A plant out of doors against a wall should not be pruned back until the end of March or the beginning of April, as the spray acts as a protection. If the plant is in a greenhouse, it may be cut back in November or February. When once established, it is best to cut back each young shoot at these times, so as to leave one or two buds only on the base of the shoots. If the shoots were ripened in summer and autumn, every shoot next season that comes from the buds left will prove flowering-shoots. Where space is to be covered, a good ripened long shoot like the rod of a Vine will throw out a flowering-shoot from every bud upon it. If these should be too numerous, the buds or shoots would require to be thinned. Good, rich, loamy soil, with a portion of leaf mould or heath soil, grow this plant well. A manure watering in summer will be advantageous. Curtail watering in autumn, and give little in winter, and begin to increase the quantity in spring and summer as the young shoots grow. Sometimes these shoots will be a yard or more in length before they show bloom, and then fresh flowers will come every day from every fresh joint until the cold dark days arrive.

R. FISH.

REMOVING LARGE EVERGREENS.

I AM about transplanting a number of evergreens—viz., Irish Yews, Bay and Portugal Laurels, and Hollies of from six to twelve years' growth. Will you give me any guidance you can as to the best mode of proceeding in the matter? Our climate is mild and moist; and my grounds situated close to the seashore.


—H. R. B.

[Irish Yews and Bays, or Sweet Bay (*Laurus nobilis*), are two of the easiest plants to move at any age or size. As their roots are very numerous, most succulent or fleshy, and much given to fibres, they carry great balls; and the only difficulty you will have with them will be to get the balls so reduced as to make them easy of carriage without destroying many roots. Have them gently wrought amongst with sharp-tined forks, and clear well away under the balls, to make sure that any tap roots are cleanly cut before the ball is thrown to one side. It is never safe to "throw" any such balls till all tap, or downward, roots are first cut. All such tap roots ought also to be cut at the level of the bottom of the ball. Portugal Laurels and Hollies are more difficult to move; and November is one of the worst of the four winter months to transplant either of them. August and September are the best time to move them; but any time from the first of May to the end of September is better than between October and April. But, as in Dumbartonshire you have twice

the quantity of moisture in the air and more rain than we get here in London, you will succeed very well with November planting. We have not forgotten the success of Sir Henry Stuart in planting large trees down that "gate," and many of them in the dead of winter. Begin at four feet from the stems of the Holly and Portugal Laurel by cutting a trench all round and as deep as the side-roots go. From that trench work off the ball by forks only, taking care of every root and fibre till within eighteen inches of the stem, then pick below the ball, and cut clean off all descending roots; and if you find the side-roots so old and hard that they would snap sooner than yield to be nearly doubled by turning the ball on one side, you must not endanger them, but get out the ball with the plant as little to one side as possible. Very loose, sandy, fresh soil is the best to plant them in: and when once the ball is in its new place the plant must not be shaken or allowed to be off the perpendicular for one moment until it is well staked after the planting is finished. We prefer two spades only for filling in amongst the roots, and the two men to keep constantly opposite one another; each man then is to throw his portion of the soil, *not on his own side of the ball or tree*, but past the stem and on to the opposite side—then the soil runs in among the roots without doubling them or stirring them either to the right or left. All the time the soil is being thus put on, a heavy watering with or without rose to the pots should be going on, and every drop of the water to be plied against the stem, just over the ball, until every root is out of sight; then water all over the roots, and leave a hollow cup over the ball to hold future waterings, and "stake" each plant with three or four guy ropes of stout rope yarn, fastened up six feet from the ground, and below to stakes driven slantingly in the earth at six or seven feet from the stem.]

MANDEVILLA SUAVEOLENS SEEDING.

IN your number of last week I see you mention the seeding of the *Stephanotis floribunda* as a rare occurrence. When I was staying with a relation in Leicestershire last year, where the garden and forcing-houses are very perfect, I saw the said plant with several large fruit on it, but the gardener told me he had never been able to ripen it, though he is very successful with the *Banana*, *Passiflora edulis*, and *Physalis edulis*.

I must mention another fact that has occurred this year in a garden that I take great interest in, a few miles from Rhyl, North Wales. There are against the house Magnolias, Myrtles, the sweet Verbena, and Arbuton, all reaching to the second-floor windows, and flowering abundantly. I suggested to my friend two years back to try in a vacant place the *Mandevilla suaveolens*, and nothing could have answered better. I did not arrive early enough to see it in bloom; but I was told it had been beautiful this year, scented the whole house, and has reached the second story. But the point I particularly wish to call your attention to is, that a fortnight ago it was throwing out long seed-pods, which it has *never done* in the greenhouse. They are in pairs, very long, something like the Vanilla, but at first joined together at the lower end, somewhat in this shape , and separating as they get longer and riper.—H. A. D.

[Your mountain plant is *Erodium cicutarium*, or Hemlock-leaved Heron's Bill. The leaf is of Our Lady's Thistle, *Carduus Marianus*.]

THE IMPORTANCE OF STIRRING THE SURFACE OF THE EARTH

AMONGST ALL VEGETABLE CROPS.

THERE are certainly few operations of a cultural nature which are of the same scale of importance as the one to which this paper refers—one which has been practised and sanctioned by the highest authorities and the most practical of agriculturists and gardeners.

It is the lot of many to be set down in a fertile soil—a soil in which the earthy constituents are so proportioned that the light porous qualities of the one are balanced by the close retentive properties of the other, and they are then in the state best suited to vegetation.

Soils thus generally compounded vary much in the quantities of mineral and saline ingredients which they contain. They generally have vast stores of inorganic matters, which are only available as food for plants when acted upon by air, and rendered

soluble by the addition of water. Every process, therefore, which facilitates the entrance of air to them must be truly important.

Although the sulphates, the muriates, the nitrates, and the phosphates occupy but a small proportional bulk of the soil, yet their influence on vegetation is most important, and upon their solubility much of the success of the crop depends. Hoeing, then, or, better still, stirring the soil by the points of a fork, admits the air, and renders soluble those inorganic elements of vegetation, facilitates the entrance of ammonia and carbonic acid from the atmosphere, and greatly benefits the plants.

We will suppose a piece of ground sown with seeds and nicely levelled and raked, a heavy shower has fallen on it; and the land, although of medium quality, appears to be caked together. The vegetation of the seed begins; and at this time it is important that the intervals between the drills be deeply stirred by the hoe or fork, leaving it in a loose and open state to admit the oxygen of the atmosphere for the nourishment of the embryo plants. From this time till the crop is fit for use this operation cannot be too often performed, and additional vigour will result to the crop after each performance. The superficial hoeing which serves to destroy weeds is very different from what it should be to promote the growth of a crop, and they should form distinct operations. In the former case the slashing superficial cut of the sharp hoe is sufficient: in the other, the ground should be picked up with the point of the hoe, or, better still, the fork.

Trifling although the practice of hoeing seems to be, it is, nevertheless, one of the most important of cultural operations; and no one of our routine operations can be omitted, the result of which is more fatal to our crops.

In hoeing ground to kill weeds, it is difficult to get men to do it well and clear their ground as they go. A good hoer should clear his ground about a foot wide all the way, and not leave a growing weed behind him. When the ground is only half hoed it soon requires hoeing again, and makes much more labour. Let no garden cultivator, therefore, grudge the use of this implement; for it is a key to those hidden treasures of mineral stores which are locked up in the bowels of mother earth, and makes them available to supply man with nutritious food. They are ours, if we choose to employ them and exercise the talents which God has given us; and if not, we lose them.

Looking at the large percentage of mineral salts which plants absorb, it has always appeared to me to be very desirable that their ashes should be returned to the soil which grew them, as the withdrawal of the haulm of every crop must considerably lessen the amount of some particular salt in the ground, which, if not replaced, must tell most materially on some future crop of the same or other kinds of plants.

In cropping, the great problem which the gardener has to solve is, How can he contrive to raise the most luxuriant crops of vegetables with the smallest diminution of value, or, as it is termed, "heart," to the land? A good gardener is very grateful for a good supply of organic manures; but he will not fail at the same time to recognise the value of those inorganic matters which his soil contains, and which are as fully at his command.

I fully think that those who would reach the climax of good gardening must do so by trenching deeply, by mixing the mineral ingredients from the bottom of the trench with the surface soil, and by unceasing application and attention to surface-stirring.

That there are many crotchets belonging to the culture of vegetables, I admit, and those who experiment on these matters find it so; but I think all experienced men must agree in my recommendation to do things well.

The advantages of surface stirring are also most apparent with plants in pots. How different is the rude state of health of that in yonder pot, which has been carefully loosened up and surfaced, to that of the plant which has been neglected, and whose surface is covered with green slime and *Marchantia*! The one lives and grows while the other merely exists. In this the principle of vitality reigns absolute; in the other those of helplessness and decay. Let our window-gardening friends not forget the importance of this practice.

We have now noticed the advantages which accrue from giving the mineral salts an opportunity of being commixed with the soil and taken up as food by plants: but these are not all. When heavy rain descends, the *loose* surface allows it to be absorbed gradually along with its concomitant ammonia; whilst the *hard* one is quite impervious to its access, and it hurries to the nearest drain to be carried away.

It has been said in olden times that "there is nothing new

under the sun;" and really it does appear to be so as far as regards the various forms which matter undergoes. The various saline and mineral ingredients of the soil go to build up the vegetable fabric, which, in its turn, serves the animal for food, and his frame is thus compounded and built up. He dies, and goes dust to dust, returning by his remains to mother earth all those elementary bases which were first absorbed by plants, and depositing the exact amount of matters absorbed. How beautiful, how exact and surprising is this circle! and yet it is and has been daily illustrated since the first formation of the world. Truly, speaking materially, there is nothing new under the sun.

It seems to me to be always satisfactory to be able to reconcile the empiric acts of practice with what is considered to be sound theory. It is like putting upon the raw material its intrinsic value; and it is a delightful task for the mind to trace cultural subjects through all their bearings. The infinite wisdom of all these arrangements, the order and exactness with which they occur, teach us to adore the great Fountain of all Wisdom and Goodness.

The improvements which have recently been made in the art of Horticulture and its younger sister Agriculture are indeed truly wonderful. But excellent as our systems now seem, I opine that in the next twenty years great additional improvements will take place, and the comfort and happiness of our race will be much extended. Let us hope that in furtherance of these objects all those who really do know will be ready to communicate what they have learned; and that those whose opportunities have been less advantageous may profit by what is communicated; while each party applies itself with energy to experiments. Thus shall we progress towards perfection. But let none of us despise small things, which often bring about great events.

H. BAILEY, *Nuneham*.

SAFFRON CULTURE IN ENGLAND.

At a recent meeting of the Essex Archæological Society, J. Clark, Esq., in the course of his "Notes on the name of the town of Saffron Walden," introduced the following statements:—

"*Crocus sativus*, *Saffron Crocus*, or *Saffron*, is an autumnal *Crocus*, the corolla of which is divided into six equal segments; the petals are of a purple blue colour; it has three linear-oblong golden stigmas, which are the Saffron. It flowers in October, and the leaves continue to grow all the winter.

"In October the flowers were gathered early in the morning, and conveyed home in baskets. Then commenced the process of picking out the stigmas (or chives as they were called). These were then pressed into cakes, and dried on kilns constructed for that purpose.

"*Saffron* was, at that time, thought a most valuable medicine for many diseases. The produce appears to have varied from 8 lbs. to 20 lbs. per acre.

"The price of Saffron, at different periods, may be estimated from the presents made by the Corporation to the Sovereigns who visited Walden.

"The quantity of Saffron varied, but it was usually presented in a silver cup or salver.

"Queen Elizabeth received a cup in 1571, but no mention is made of the quantity.

"1614. James was presented with a cup and 1 lb. of Saffron, which cost £3 3s. 4d., a considerable sum in those days.

"1631. 5½ ozs. of Saffron given to Charles I. are charged at 18s. per ounce.

"1665. 20 ozs. of Saffron for Charles II. are charged £5 15s.

"1689. 14 ozs. for William III. cost £3 11s. 3d.

"1717. The Saffron to put in the salver given to King George, cost £1 6s. 6d.

"The first introduction of the plant into Walden is attributed to Sir Thomas Smith, born here in 1512 (the house he was born in is in the Market-Place). He was Secretary of State to Queen Elizabeth and Edward VI. But although our illustrious townsman was an extensive grower of Saffron, he certainly was not the individual who first introduced it; for it is evident from the writings of Fleming, a clergyman who resided in the neighbourhood in 1584, that it was extensively grown here in 1540, when Sir Thomas was still but young. That the town was celebrated for its culture in 1549, in the time of Edward VI., may be inferred from the circumstances that on its charter being granted by that monarch, the Corporation bore three Saffron plants in their arms. The town must then at that period have been famous for its cultivation.

"Hollingshed, who wrote early in the time of Elizabeth, states that the Saffron grown about Saffron Walden (sometimes called Waldenbury) was first planted there in the time of Edward III., and Lord Braybrooke, in his history of Audley End, states that the town took the name of Saffron in the reign of Edward III.

"It was a tytheable commodity by the Abbot and Vicar of Walden, in 1444, which was sixty-eight years before Sir Thomas was born; and at a court held for the manor in 1518, the owners of certain hogs found trespassing in the Saffron-beds were prosecuted. These facts sufficiently prove that Sir Thomas was not the introducer, but that it was cultivated long before his time. The popular opinion might have originated in his successful attempts to revive the culture of the plant at a time when it was much neglected.

"Saffron is still retained in the British Flora as a naturalised plant; but I am of opinion that it does not naturalise, as no traces of it are to be found in this neighbourhood. The only instance in which I ever saw the plant growing wild was when this building was erected, and large quantities of earth removed, a few plants came up at the west end of the building, but the next season they all disappeared."

[The name of Saffron is of Arabic origin, and is thus traced in Lyte's "Herbal," published in 1578:—"In the Arabian speech *Zahafaran*, from thence it was called in French and high Dutch *Saffran*; in base Almaine *Safferaen*, and in English *Saffron*."

Saffron was in reputation as a medicine, and was cultivated in Greece when Theophrastus wrote, about three centuries before the Christian era. Writing of "odours," he says that the Saffron (*Crocium*) prepared in *Ægina* and *Silicia* was the best. Pliny says that it could not be grown profitably in Italy; and he also states that the Saffron most esteemed was that of *Cilicia*, especially that grown on Mount *Coryeus*; next in estimation was that from Mount *Olympus*; and, lastly, that from *Centuripa* in Sicily. *Columella*, *Palladius*, *Varro*, and *Vegetius*, all give some slight directions for its cultivation, as does *Florentinus* (*Geoponica*, xi., 26) who was a Greek writer on the cultivation of plants early in the third century.

Some have thought, considering that the Romans introduced Vines and other plants which they valued into Britain, that Saffron might have been one of them; but we think a tolerable test of the source from whence a new plant has been imported is the name by which it continues to be popularly known. The Vine and the Cherry, for instances, were introduced by the Romans, and retain names corrupted from those by which they were called by that nation. Saffron retains a name of Eastern extraction, and this inclines us to believe that there is some truth in the tradition preserved by *Hakluyt* (ii., 164), that bulbs of the plant were smuggled from the Levant by a Palmer, and introduced into this country. Gough, Camden, and others of our oldest historians, agree in stating it is "a commodity brought into England in the time of King Edward the Third." A time of crusading and pilgrimages.

Conrad Heresbach, writing in 1570, states that it was then cultivated about *Spire* and other places in Germany, and three years later, our Tusser, whose farming experience was gained chiefly in Essex, writes thus, in "August's Husbandry," as if Saffron were then commonly cultivated:—

"Pare Saffron between the two St. Mary's days,
Or set, or go shift it, that knoweth the ways.
What year shall I do it, more profit to yield?
The fourth in the garden, the third in the field.

"In having but forty foot, workmanly dight,
Take Saffron enough for a lord and a knight.
All winter time after, as practice doth teach,
What plot have ye better for linen to bleach?"

This needs little comment—a plot of forty feet square produced enough for a nobleman's establishment. The bulbs were taken up and planted in fresh ground every third or fourth year; and during the winter the green leaves of the Saffron (*Crocus sativus*) remaining after the stigmas were harvested, made a clean surface on which to outspread the family linen for bleaching.—J.]

HEATING A COMBINATION OF HOUSES.

I HAVE a lean-to vinery twenty-one feet long, fourteen feet high, and fourteen feet wide, heated by a Thompson's retort boiler. The stoke-hole, &c., occupy six feet, to be between houses. I wish to erect a Peach-house in continuation, to be heated from the same boiler. The wall is fifteen feet high, with a

* July 22nd, and August 15th.

south aspect. The border is forty feet long and fourteen feet wide. I wish to divide the house in the centre,—say twenty feet. The west division to be again divided betwixt wall and extremity of the border,—say seven feet. Melon-pits to be erected in the front section; the back part to be occupied as an orchard-house. The east twenty-feet section to be used for Peaches, Camellias, Plums, &c., in pots. There are Peach trees at present on the fifteen-feet brick wall, and down the east wall to the width of the border, which is to be all covered by one roof. Should the trees be removed from the wall, the wall plastered, and trained to a wire trellis? The boiler is set at present eighteen inches below the surface. How am I to heat my Melon-pits?—PUMPKIN.

[The moving of the trees from the wall, plastering and wiring, are mere matters of taste, convenience, and luxury. The trees will do equally well nailed against a back wall, fresh whitened with lime every year, darkened a little to take off the glare. If the trees be removed, the holes in the wall daubed up, the wall then washed with lime, and in a month painted with anti-corrosive, or other paint, it would be cheaper than plastering, and the wires should be fixed some six inches apart previously. The chief advantage of the wiring is, that it prevents holes being made, which are a secure lodging-place for all sorts of insects. Of course, you mean your orchard-house to be quite distinct from the Melon-pits. The front wall of the former might do for the back wall of the latter. If you wish a pathway between, and a separate back wall for the Melon-pits, the latter will be made all that narrower. As to heating the pits, that must depend chiefly on the arrangements made with the boiler. The pits must be more of a house than pits; for if your boiler, the top of it, we presume, is only eighteen inches below the ground, then you should not sink more than nine inches or a foot for the pits. Two pipes would be necessary for bottom heat, and two for top heat. Four inches, if the pit were seven feet wide, and three-inch pipes if the pit were four feet and a half or five feet wide. Your pits would require to be four feet and a half high at the back, and three feet three inches or three feet six inches in front, and from nine inches to a foot of that might be below the level of the surface soil, which would make them easier to get at. This would give room enough for a layer of clinkers, brickbats, &c., over the bottom pipes to a depth of nine inches or a foot, from fifteen to eighteen inches for soil, and a similar space for foliage. The easiest mode of heating would be to take the flow-pipe to an open cistern, and from thence take a pipe to a each place; connecting all the returns with the main return near the boiler. The farther house on the east side, we presume, will be the cooler, and being farthest from the boiler might be heated by a continuation, with valves to stop when necessary the upper pipes of the Melon-pit. By this mode you could not heat the east section without also heating the Melon-pit; but that would be no loss, as when Melons were not growing it could be filled with something else. It will be necessary, however, to have the top heat in the Melon-pit distinct, so that the water may circulate without going farther. But for this east section, the top pipes in the Melon-pit might return under the bed, and thus do away with the necessity of another valve at the cistern.]

STRIKING CUTTINGS.

I HAVE been reading an excellent article by Mr. Fish, in THE COTTAGE GARDENER, replying to numerous inquirers who are in trouble about their cuttings.

I venture to add a word or two, in no presumptuous spirit, but on the principle that one schoolboy may sometimes help another with a perplexing task more effectually than the master, with his vastly superior knowledge, has been able to do.

Amateurs (by which term I here mean novices in gardening), want treating, not only with extreme simplicity, but also very decidedly; giving them as few processes to choose from as possible. For they are apt to get bewildered, or they fail in the attempt to combine several systems.

As to cuttings, for instance. Will you permit, and will Mr. Fish take it good-naturedly, that I should say to the simplest of your readers that wishes to strike cuttings of the ordinary bedding plants in August and September, 1860, do this:—Procure, if you have it not already, a frame of one or two lights, according to your requirements, and have a slight hotbed made up in March. This will do for Cucumbers; but better still, in your case for Asters, Zinnias, and other half-hardy annuals to be sown in drained-pans, and the seedlings pricked out in light soil with

which the bed should be covered to the extent of about six inches. For this a mixture of two-thirds from the ground where your driest early Potatoes grew, with one-third of leaf mould, will do as well as anything, and the same with a dash of sharp sand for the seed-pans.

In June, the seedlings will have left your bed; and the heat, though much diminished, will not be quite extinct. Level the surface, and you may have a frame full of scarlet Geraniums (*Tom Thumbs*, and equally, I have no doubt, their successors Mr. Beaton tells us of), well rooted, and ready for potting singly in small pots by the time you want to put in your autumn cuttings; and this, by planting them out like Lettuces, seeing that they do not want for water, and keeping the lights off entirely.

About the middle of August, having cleared out your Geraniums, rake off all the top soil from your bed; taking with it, if you like, a little of the now-decomposed dung, as it will make altogether, with the addition of some silver-sand, a capital compost for your pot Hyacinths, &c. Save this under cover, and upon the bed thus bared put a few inches (say four), of coal ashes for the cutting-pots to stand on when charged with cuttings. In the preparation of these, giving air and shading, follow the advice of Mr. Fish, and you will not have to trouble him again in this matter. His time is too valuable to be spent in the repetition of lessons to us of the junior classes, when the seniors would be glad of the supervision of a master mind; so we must try to "coach" one another. At some future time, if space be given me, I may say a little more.—GEO. R. TAYLOR.

[You will oblige us by saying "a little more" very soon and very often.—EDS. C. G.]

BRITISH POMOLOGICAL SOCIETY.

A MEETING of the British Pomological Society was held at the Hanover Square Rooms, London, on Thursday, the 27th ult. Robert Hogg, Esq., Vice-President, in the chair.

The following gentlemen were elected ordinary members:—

RALPH SNEYD, Esq., Keele Hall, Staffordshire.
R. P. SPICE, Esq., Heidegger House, Richmond, Surrey.
C. M. CAMPBELL, Esq., Hart's Hill, Stoke-upon-Trent.
Mr. GEORGE MILES, the Abbey, High Wycombe.
Mr. THOMAS BURNETT, Baynard's Park, Guildford.
Mr. J. WEBSTER, Gordon Castle, Fochaber, N.B.
GEORGE HILTON, Esq., Flemings, near Wickford, Essex.

A paper was read by F. J. Graham, Esq., M.A., of Cranford, on the ravages of the grub of *Zeuzera Aesculi*, on young Pear plantations, and was accompanied by a figure of the insect, and a specimen of the stem of a young Pear. The stem had been completely eaten all round under the bark, and beyond the alburnum, causing the whole of the upper part of the tree to die off. The paper entered fully into a description of the insect and its transformations; the method of its burrowing into the wood of the Pear; and explained Mr. Graham's view of the process by which the insect managed to turn itself in its burrow, so that the head of the imago should be towards the aperture when it emerged from the chrysalis state. The thanks of the Meeting were unanimously voted to Mr. Graham for his excellent communication, with the request that it should appear in the proceedings of the Society, which was assented to.

C. M. Campbell, Esq., of Hart's Hill, Stoke-upon-Trent, offered a prize of *Two Guineas* for the best dish of late Grapes, to be competed for at one of the spring Meetings. And H. G. Bohn, Esq., of Twickenham, offered a prize of *Three Guineas* for the best collection of Muscat-flavoured Grapes, not being *Muscat of Alexandria*, or any of its varieties.

Considering the unfavourable season, there was a large show of fruit, some of which were very fine. The collection of Grapes was unusually large, and included three forms of *White Tokay*, from Mr. Hill, of Keele Hall, Staffordshire; six varieties of Black Hamburg from Messrs. Lane and Son, of Berkhamstead; four distinct varieties from Mr. Wright, of Twickenham; and some remarkably fine specimens of out-door Grapes, among which, the best were Black Hamburgs, grown against a wall without any protection, by Captain Hopkins, of Surbiton Hill, Surrey. The largest bunch weighed 1 lb. 6 ozs., the berries were large, well developed, highly coloured, and very well flavoured, rivalling many examples of the same variety grown under glass.

Mr. Snow, of Wrest Park, exhibited a very nice bunch of *Muscat Hamburg*, grown in a pot in a cool vinery without fire heat. The flavour was very rich and delicious, but the Muscat

flavour was not fully developed, as we have seen it on former occasions in specimens grown in heat.

At this meeting prizes were awarded of one guinea and half a guinea for the best and second best dishes of Dessert Pears of any kind. A great number of varieties were placed for competition; and the first prize was awarded to *Duchesse d'Angoulême*, from Mr. Whiting, of the Deepdene; and the second to Mr. Ingram, gardener to J. J. Blandy, Esq., of Reading, for *Beurré de Capiaumont*.

Prizes of the same amount were also awarded for the best and second best dishes of Dessert Apples, both of which were taken by Mr. Sidney Ford, gardener to W. E. Hubbard, Esq., Horsham, with *Ribston Pippin* and *Reinette Grise*.

First and second prizes, of one guinea and half a guinea, were awarded for the best Culinary Apples, for which there were many competitions. The Society has determined that Apples of this class shall in future be baked, so that a full appreciation of their merits may be obtained. The awards were to Mr. Newton, Enfield Chase, for *New Hawthornden*, and to Mr. Sidney Ford for *Edmund Jupp*, a variety grown about Horsham under that name.

So greatly has the business of the Society increased and the length of the Reports become, that we find it impossible to give more than a mere outline of the proceedings. We must, therefore, refer our readers to the Reports published by the Society for more detailed accounts.

WHAT TO LOOK FOR ON THE SEASHORE.

(Continued from page 31.)

CHAP. I.—PROTOZOA.

INFUSORIA—RHIZOPODA—PORIFERA.

As our design in these pages is solely to investigate animal organisations, we must pass by unnoticed the numerous varieties of marine vegetation with which sea and shore abound. And, highly interesting as their examination would be, we must leave untouched the Sea or Bladder-wrack, the Knotted-wrack, the Sealace, Sea-girdles, Sea-wands, Sea-furbelows, Peacocks' tails, and all the extensive variations of the so-called Sea-weed, and commence with the class of animalcules called *Protozoa*, which present the very lowest grade of animal life. So close, indeed, are they on the borders of the vegetable kingdom, that it becomes a matter of some difficulty in many instances to decide whether they are on one side or the other: they seem to be sluggish, inert, lifeless masses of jelly, without feeling, functions, or organs, and very frequently without form. Many of them, however, when viewed by the aid of a magnifying-glass when alive and under water are seen to discharge strong currents from certain distinct orifices; and if they are torn asunder the whole substance is found to be perforated by irregular canals, all of which communicate with the surface—one set narrow and minute, by which the water is admitted; the other wide and ample, by which it is discharged. They are to be found on the surface of the rocks, on the under side of stones, at low water in the cavities of the shore which are washed by the tide, and frequently they may be seen attached to branches of Sea-weed.

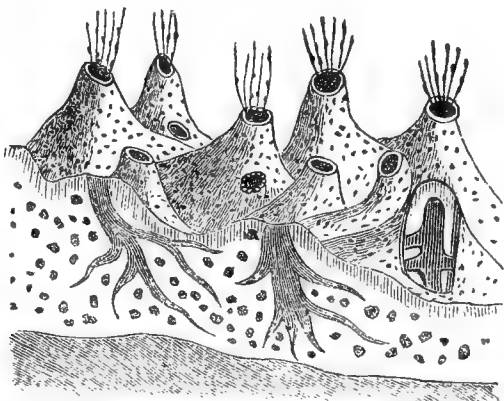
The Protozoa may be divided into three classes—Infusoria, Rhizopoda, and Porifera.

The *Infusoria* (Infusories) are so called from the fact of their being discovered in infusions of all kinds of organic matter, vegetable as well as animal. They abound in all stagnant pools, also in running streams, whether salt or fresh; and, being purely microscopic, can only be examined under a magnifying-glass. They are changeable in form, extremely minute, naked, without external organs, nervous system, or vessels. They have mostly internal globose cavities; and their locomotion is effected by means of cilia, or slender threads, the lashing to and fro of which serves to propel them through the water. Their speed, however, varies: some moving very rapidly, others slowly and with apparent effort. Careful observation has established the fact of the perpetual motion of these little creatures. They make no difference between day and night, and are never seen in a state of repose. Sleep appears to be perfectly unnecessary to them—they pass their lives in one restless, unending round of motion. Little red spots have been noticed on most of them, which have been pronounced to be eyes; but it is a presumption built on little or no foundation.

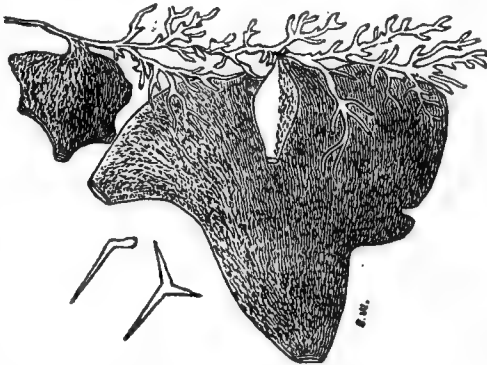
Although many Infusoria are peculiar to fresh water, still large numbers are marine, as may be readily seen by examining

under a lens some sea-water which has been a short time in an aquarium. It seems somewhat difficult to give these animalcules any distinct position: many genera having been proved to be simply the earlier stages of higher animals; others are said to be merely vegetables endowed with spontaneous motion. But surely the existence of such spontaneous motive power elevates them above the simple vegetable. Some zoologists maintain that the whole group can and will ultimately be resolved into other classes. Perhaps the wisest judgment to be formed of them is to adopt the words of Dr. Burnett, who says, "I regard the Infusories as in a completely transition state; and although it may be well to arrange these forms systematically for the sake of convenience, yet they cannot be considered as holding fixed zoological positions."

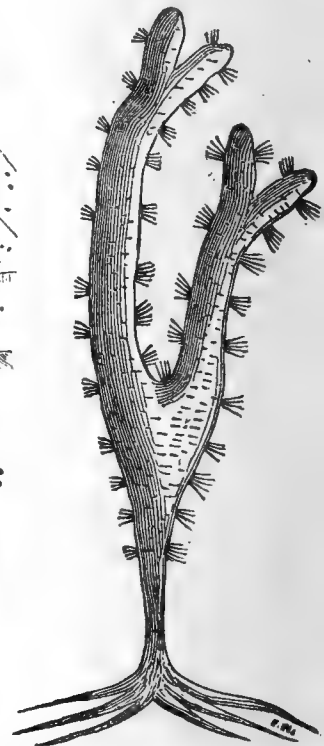
The *Rhizopoda* are microscopic animalcules of very simple structure, and closely allied to the Infusoria. They may be described generally as merely transparent membranes of a glutinous consistency, of an infinite variety of form; some oblong, some flat, some cylindrical, some globular, and others of various angular forms. In some there is an appearance of external organs such as tails, and long contractile threads or filaments (cilia), which are used for the purposes of locomotion. Some of these creatures are entirely unprotected; whilst others are enclosed in a horny case, which has several orifices for the emission of the long tenacious threads before mentioned. Many of them are to be found in fresh water, but by far the greater number of them are inhabitants of the sea.



Section of a living Sponge.



Grantia compressa and its calcareous spicula.



Spongia oculata, showing the orifices and currents outwards.

The *Porifera*, or Sponges, are a very curious branch of the family of the Protozoa; and as being more familiar than the other species demand a more particular notice. That the limits between the animal and vegetable kingdoms are very difficult of definition is an established fact; and the opinion given of Sponges by two competent authorities only tends to confirm it. Professor Owen remarks that "if a line could be drawn between the animal and vegetable kingdoms, the Sponges should be placed on the vegetable side of that line." Whilst Dr. Johnston, in his "Hist. of Brit. Zoophytes" has this passage:—"Sponges are true zoophytes; and it imparts additional interest to their study to consider them, as they probably are, the first matrix and cradle of organic life, and exhibiting before us the lowest organisations compatible with its existence."

The common Sponge (*Spongia officinalis*), is obtained chiefly from the eastern part of the Mediterranean, more especially round the numerous islands of the Grecian Archipelago, where it is found adhering to the rocks by a broad base, and assuming a more or less manifest cup form. The coarser sort is supplied by Barbadoes and the Bahama Islands. Independently of these, however, the streams and shores of the British Isles produce sixty or seventy distinct species. Whoever has looked with any

attention at the rocks and other portions of our shore which have been exposed by the receding tide, cannot have failed to notice some irregular masses of a yellow fungous substance adhering to them, taking the form of small conical hillocks perforated at the apex—presenting somewhat the appearance of miniature volcanoes. This is the “crumb-of-bread Sponge,” (*Halichondria panicea*), one of the commonest species, and well suited for the examination of its formation, which we shall detail presently. In similar situations may be found, although more rarely, the graceful Sack Sponge (*Grantia compressa*), which looks like a flat angular bag of a whitish colour, each angle having an orifice. The Sack Sponges are generally found in clusters, depending by a narrow base either from the bare surface of the rocks or from the branches of various Sea-weeds. It is unnecessary to draw attention to any other species, as these two are those chiefly seen on our coasts and display the characteristics of all the others.

The general character of the Sponge may be described as of no regular shape, very elastic, flexible and tenacious, porous, rough on the surface, and of a woolly texture. It consists of numerous horny fibrous canals communicating one with the other, and when taken from the water is covered with a transparent gelatinous slime, with a powerful fishy smell, and so fluid as to run off when removed from its native element. Yet this clear slime is the flesh of the animal; the Sponge, as we see in daily use, being merely the skeleton cleaned and dried. This skeleton is composed of one or two of the following substances:—Flint, lime, and a peculiar horny matter. In some species the flint and lime being crystallised, form a series of spicular needles, varying in length and thickness, but always maintaining the same form. The horny matter of which the Sponge in ordinary use affords an example, is arranged in tough, solid fibres, irregularly united to each other. The orifices on the surface corresponding with the canals with which the animal is perforated, are supposed to be the mouths; and in life the surrounding water flows through one series of these ducts in a continual current (interrupted, however, at the will of the animal), from without into the interior of the body, and is afterwards discharged by another series, thus maintaining a perfect system of circulation. The mode in which the current is kept up is by certain cilia, or threads, lining the pores, or ducts.

The manner in which Sponges reproduce their species is sufficiently curious. There are remarked, at certain seasons of the year, in the channels of the living Sponge, innumerable yellow-looking granules imbedded in the jelly-like flesh. These gradually increase in bulk; and on being freed from the slimy mass, they are instantly carried away through the nearest outlet by the perpetually out-flowing current. They are provided at one extremity with numberless minute threads, by the lashing motion of which they are rowed along the water until they meet with a suitable resting place, to which they at once adhere, spreading out an adhesive gelatinous film, and absorbing its cilia (threads) for which it has now no further use. From the spot chosen they move no more, but gradually increase in bulk, and soon develop the structure and exercise the functions of the parent Sponge. The care and providence of an All-wise Creator, even of so humble a member of the great family, are worthy of the deepest admiration. He has ordained that these helpless little creatures should for a time be endowed with the power of locomotion, denied them in their adult state. Were it not for these means of separating themselves from the parent, they would of necessity congregate in enormous masses; as the parent, itself utterly deprived of locomotive power, would be utterly incapable of dispersing to any distance the numerous progeny it produces. Sponges are generally found in shallow water. Those which reside in the deeper recesses of the sea are of larger size and finer texture than those which are exposed to the action of the waves. These are procured by divers, and in many of the Grecian Islands diving for Sponge is an ordinary occupation of the inhabitants.

The horny Sponge is almost wholly confined to the warmer seas; but the calcareous, and more especially the flinty specimens, are common to our latitude.

The sense of feeling in Sponges seems to be either strangely obtuse, or altogether wanting, no evidence of its existence having been noticed. They may be torn asunder, burnt with hot irons, or subjected to the action of powerful acids, without betraying the slightest evidence of sensation. Still a convincing proof of their animal nature is furnished by the strong ammoniacal smell given out by them when burnt, and which is peculiar

to animal matter. Independently of which, by carefully watching a living Sponge it will be found to exhibit an energetic and continuous action, which would be sufficient of itself to demonstrate the existence of a vital principle.—W.

(To be continued.)

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 56.)

PEARS.

DUCHESS DE MARS.—Fruit medium sized, obovate. Skin yellow, with a tinge of reddish-brown next the sun, and considerably covered with brown russet. Eye small and closed, set in a shallow depression. Stalk an inch long, inserted without depression. Flesh buttery, melting, juicy, and well flavoured. Ripe in November.

DUCHESS D'ORLEANS (*Beurré St. Nicholas*; *St. Nicholas*).—Fruit large and pyriform. Skin yellow on the shaded side, but with a tinge of red on the side next the sun, mottled with greenish-brown russet. Eye open, set in a wide, shallow basin. Stalk three quarters of an inch long. Flesh yellowish-white, melting, buttery and juicy, with a rich, sugary, and vinous flavour, and fine aroma. A most delicious pear, ripe in October.

DUNMORE.—Fruit large, oblong-obovate. Skin greenish, marked with numerous dots and patches of brown russet, and with a brownish-red tinge next the sun. Eye small and open, set in a rather deep and narrow basin. Stalk an inch and a half long. Flesh yellowish-white, buttery, and melting, with a rich sugary flavour. Ripe in September and October.

Early Beurré. See *Ambrosia*.

Early Catherine (of America). See *Early Rousselet*.

Early Rose Angle. See *Citron des Carmes*.

EARLY ROUSSELET (*De Chypre*; *Cypress*; *Early Catherine*; *Perdreaux*; *Perdreaux Musquée*; *Rousselet Hâtif*).—Fruit small, pyriform. Skin smooth, yellow in the shade, and bright red next the sun, covered with grey dots. Eye small, placed in a shallow basin. Stalk an inch long, inserted without depression. Flesh yellowish, crisp, tender and juicy, sweet and perfumed.

An early pear, ripe in the end of July and beginning of August.

Early Charnock. See *Charnock*.

Early Sugar. See *Amiré Joannet*.

EASTER BERGAMOT (*Bergamotte de Bugi*; *Bergamotte de Pâques*; *Bergamotte de Toulouse*; *Paddington*; *Roberts' Keeping*; *Royal Tairlon*; *Tarling*).—Fruit medium sized, roundish-turbinate. Skin pale green at first, but changing to pale yellow, and covered with numerous brownish-grey dots. Eye small, set in a shallow basin. Stalk an inch long, set in a small cavity. Flesh white, slightly gritty, crisp and juicy, sweet and aromatic. In use from March to April.

EASTER BEURRÉ (*Beurré de la Pentecôte*; *Beurré Anglaise*; *Beurré de Pâques*; *Beurré d'Hiver de Bruxelles*; *Bergamotte d'Hiver*; *Bergamotte de la Pentecôte*; *Bergamotte Tardive*; *Canning*; *Canning d'Hiver*; *Doyenné d'Hiver*; *Doyenné d'Hiver Nouveau*; *Doyenné de Pâques*; *Doyenné de Printemps*; *Du Pâtre*; *Philippe de Pâques*; *Seigneur d'Hiver*; *Sylvange d'Hiver*).—Fruit large, obovate, inclining to ovate. Skin pale green at first, but inclining to yellowish-green, and sometimes with a brownish tinge next the sun, marked with a few patches of russet, and strewed with numerous large russet dots. Eye small, with long, narrow, incurved segments set in a pretty deep cavity. Stalk an inch long, stout, inserted in a deep narrow cavity. Flesh white, buttery, and melting, very juicy, sugary, and richly flavoured.

One of the best late pears, in use from January till March.

ECHASSERY (*Bezi d'Echassery; Bezi de Landry; Muscat de Villandry; Viandry; Verte Longue d'Hiver*). Fruit produced in clusters; medium sized, roundish-oval. Skin clear yellow, covered with numerous dots and patches of greyish-brown russet. Eye small and open, set in a shallow basin. Stalk an inch and a half long, inserted in a small knobbed cavity. Flesh white, buttery and melting, sugary, and with a musky flavour. In use from November till Christmas.

ELISA D'HEYST.—Fruit above medium size, or large irregular-oval, widest in the middle and tapering towards the eye and the stalk. Skin smooth and shining, yellowish-green, clouded with russet about the stalk, and covered with russet dots. Eye closed, set in a deep, irregular basin. Stalk half an inch long, stout, and inserted without depression. Flesh melting, juicy, sugary, and richly flavoured. Ripe in February and March.

Ellanrioch. See *Hampden's Bergamot*.

ELTON.—Fruit medium sized, oval. Skin greenish, almost entirely covered with thin grey russet, and marked with patches of coarser russet, with a tinge of orange on the part exposed to the sun. Eye small, very slightly depressed. Stalk stout, inserted in a deep cavity. Flesh firm, crisp, juicy, rich, and excellent. It is frequently without a core and pips, the flesh being solid throughout. Ripe in September, but does not keep long.

EMERALD.—Fruit medium sized, obovate, rather uneven in its outline. Skin pale green, with pale brownish-red next the sun, and covered with russet dots. Eye open, set in a small irregular basin. Stalk an inch and a half long, obliquely inserted in a small cavity. Flesh buttery, melting, and richly flavoured. Ripe in November and December.

EMILE D'HEYST.—Fruit above medium size, pyramidal. Skin bright yellow when ripe, marked with patches and veins of cinnamon-coloured russet. Eye small, set in a narrow and rather deep basin. Stalk about an inch long, set in a narrow uneven cavity. Flesh tender, buttery, and melting, very juicy, sugary, and perfumed. November.

English Bergamot. See *Autumn Bergamot*.

English Caillot Rosat. See *Caillot Rosat*.

Epargne. See *Jargonelle*.

Eparonanaïs. See *Duchesse d'Angoulême*.

Epine Dumas. See *Belle Epine du Mas*.

Epine d'Été. See *Summer Thorn*.

Epine d'Été Couleur de Rose. See *Summer Thorn*.

Epine d'Été Vert. See *Summer Thorn*.

Epine d'Hiver. See *Winter Thorn*.

Epine de Rochechouart. See *Belle Epine du Mas*.

Epine Rose. See *Summer Rose*.

Epine Rose d'Hiver. See *Winter Thorn*.

Etourneau. See *Winter Nelis*.

Excellentissime. See *Fondante d'Automne*.

EYEWOOD.—Fruit below medium size, Bergamot-shaped. Skin greenish-yellow, very much covered with pale brown russet, and large russet dots. Eye small and open, slightly depressed. Stalk above an inch long, slender, inserted in a small cavity. Flesh yellowish, exceedingly tender and melting, very juicy, with a sprightly vinous flavour, and a fine aroma.

A very excellent pear, ripe in October. The tree is very hardy, and a good bearer.

(To be continued.)

NEW AND RARE PLANTS.

RICHARDIA ALBO-MACULATA (*White-spotted-leaved Richardia*).

Native of Natal; imported by Messrs. Backhouse, of York, flowering in the greenhouse in June. Flowers white.—(*Bot. Mag.*, t. 5140.)

EVELYNA CARAVATA (*Aublet's Evelynia*).

This Orchid has also been called *Serapias Caravata*, *Cym-*

bidium hirsutum, *Sobralia Caravata*, and *Evelyna lepidia*. Native of French Guiana. Flowers yellow, with purple bracts, appear in November.—(*Ibid.* t. 5141.)

PENTSTEMON CENTRANTHIFOLIUS (*Red-Valerian-leaved Pentstemon*).

It has been called *Chelone centranthifolia*. Native of New California, whence it was sent by Douglas. Blooms in July. Flowers scarlet. Hardy, ornamental, "and deserves to be more cultivated."—(*Ibid.* t. 5142.)

SPRAGUEA UMBELLATA (*Umbellate Spraguea*).

Native of California. Sent to Messrs. Veitch of the Exeter and Chelsea Nurseries, by Mr. W. Lobb. "A very elegant dwarf-flowering species, of novel character, well adapted to rock-work and flower-border margins, having proved quite hardy in Messrs. Veitch's nursery." Spikes crest-like, formed of two rows of closely imbricated flowers, white tinged with purple. Flowers in July.—(*Ibid.* t. 5143.)

LÆLIA XANTHINA (*Yellow-flowered Lælia*).

A Brazilian Orchid, imported by Messrs. Backhouse and Son, of the York Nursery.—(*Ibid.* t. 5144.)

MOMORDICA MIXTA (*Large-flowered Momordica*).

It has also been called *M. Cochinchinensis* and *Muricia Cochinchinensis*. It is a native of the country thus indicated, as well as of China, Mouhmein, and other parts of India. Flowers straw-coloured, purple at the base, open in July.—(*Ibid.* t. 5145.)

LARGE HYDRANGEAS IN SMALL POTS.

HAVING read in THE COTTAGE GARDENER for July 25th, page 248, an answer to my inquiry as to what time and how those favourite plants were obtained about the south with such large heads of bloom in small pots. Your answer was, that they have strong old plants to get cuttings from: and in the month of September, or later or earlier, when they can feel the top of a shoot set for bloom another year, they instantly cut it off with three joints, put it in a 60-sized pot, plunge it in a warm bed without forcing the flower-bud any further; early in spring they shift into the largest size pot, and humour the plant so as to enable it to flower as though it had not been cut off. This answer I will not dispute. But again you say that any plants struck in the spring will make a bed next summer; but ten thousand of them would not furnish one bloom such as I want. Oh, what a disappointment that would be after all my care and trouble in nursing them on! But let us pause for awhile, and wonder if such really would be the case. How are successions of flowering plants to be obtained, or, in fact, anything connected with the gardening world but from frequent sowing, propagating, and stopping? The same with the Hydrangea. If you desire early bloom you must propagate early; and if a succession is to be obtained you must propagate accordingly; and with judgment you will meet with success. Now I am not in possession of ten thousand plants of the one in question; but I have one hundred, and nearly all well set for bloom, strong, healthy, and hardy; so that, instead of my spring-struck cuttings not flowering, as you say, until summer, they will towards December, and with later-struck cuttings form a fine succession, probably when other flowering plants are scarce.

Permit me to state, for the benefit of others, how I have succeeded in obtaining the plants which I mention. In the month of March I had six old plants which had taken their rest during winter. I started them in a gentle heat; and when the cuttings could be had one or two inches long, I immediately cut them off, put them in cutting-pots, plunge them in a common Cucumber-frame in a good bottom heat; when rooted pot them off in a sandy fibrous loam, place them in a moist heat, and when the pots are filled with roots give them a shift into three-inch pots; still grow them on until the month of August, when I remove them to a cooler house, and give them frequent manure watering until the month of October, when I gradually withhold it, and expose them freely to abundance of air; and the result is what I have before stated—that is, I have a fine stock of dwarf, strong, and healthy plants, admired by everyone who sees them.

I have also young plants to succeed from cuttings put in in the month of September, which will remain in three-inch pots until February, and then be transferred to 48-size pots. I think they deserve cultivating more extensively, for they are quite the ladies' favourite; and I have no doubt but these few simple

remarks may be useful to some of my younger brethren.—
J. EVANS.

[Very good; indeed nothing could be better than your mode of propagating. But what about the *large heads*? Just let us know the size of the flower-heads when they do come; and if they will be one-half of the size of those round St. Paul's, we must have a leaf out of your book.]

TRITONIA AUREA CULTURE.

WOULD you kindly tell me how to treat my *Tritonia aureas*? They are grown in the open ground, and are hardly out of flower; but instead of trying to make new bulbs above the old ones, like the *Gladiolus*, *Ixia*, *Sparaxis*, &c., each old bulb has sent out four or five suckers, growing horizontally, and shewing no tendency at present to come to the surface, and rooted at each joint like Couch Grass, or Lilies of the Valley. Many are nearly twice as long. Would they not grow and form a bulb from every joint where they are rooted?—[Yes.]

I cannot apply the directions given in the Vol. for 1855, p. 255, of THE COTTAGE GARDENER, to my bulbs, as I cannot leave them in the ground any longer, nor did I wish to take them up before the new growth had commenced, when they were in full flower.—C. W.

[The old bulbs, with the travelling suckers attached, should be taken up and potted, and kept a little moist all the winter, and in February the suckers should be taken off and potted like cuttings round a pot, and be kept growing on all the spring, and be planted out by the end of May. If the old roots have any fresh leaves in February, keep them watered also; if not, they may be let to rest for six weeks. We treat this plant as an evergreen, and have it in bloom till December.]

TRADE LIST RECEIVED.

Forest Trees, Shrubs, &c. Peter Lawson & Son, Edinburgh and London. This is a good Catalogue of hardy trees and shrubs, deciduous and evergreen, conveniently grouped,—viz., “Firs for Timber,” Plants for Shrubberies and Underwood,” “Weeping Trees,” &c.

TO CORRESPONDENTS.

SMALL FARM (*Subscriber*).—You had better advertise in our columns, or in the papers of the county in which you wish the farm to be situated.

FROSTED GERANIUMS (*A Constant Subscriber*).—You will have seen what Mr. Beaton said last week. The only chance of saving them is to cut them down close to the ground, and house them where no frost can reach them.

VERBENAS (*B. H. W.*).—The following are the names of the best twelve Verbenas for planting out in borders:—Scarlet, *Robinson's Defiance*. Next shade of scarlet, *General Simpson*. Dark scarlet, *Géant des Batailles*. Purple, *Purple King*. White, *Mrs. Holford*. Blush, *Etirole de Venus*. Lilac, none. Pink, *Duchess of Northumberland*. Rose, *Madame Bandinal*. Fancy, *Imperatrice Josephine*. Mulberry, *Wonderful*. The way we should like to see Verbenas in all their colours would be to put three shades of each colour, and then to break the series with a white or very dark one: the lights to be separated by *Wonderful* or *Purple King*, and the reds by *Mrs. Holford*.

GENERAL INDEX (*Carriag Cathol*).—You will have seen an answer in our last number.

VARIOUS (*H. J. A., Pembroke Dock*).—All our volumes are in print, price 8s. each. Fortune's Yellow Rose might succeed on an east wall at the back of a kitchen if properly managed. *Sawdust* would do for mulching, in the absence of better material. We would avoid Oak sawdust, on account of its astringent constituents. The contents of a cesspool mixed or unmixed with ashes would not be too strong for Roses.

ORCHARD-HOUSE (*An Old Subscriber*).—Mr. Rivers's little work, “The Orchard-house,” of which a new edition has just appeared, will give you all the information you need.

MALARIA OF THE INDIAN JUNGLES (*An Old Indian*).—We fear that it is not the carbonic acid gas emitted by the leaves of living trees at night, but the carburetted hydrogen, phosphuretted hydrogen, and other results of putrescent vegetation. Against these contaminators of the blood chemistry has not yet detected a remedy; and, if long inhaled, whether in the jungles of India, the fens of Lincolnshire, or the ill-drained alleys of a city, low prostrating fever is the consequence. We have had too many valued friends its victims in India not to feel as deeply on the subject as yourself.

SHANKING IN GRAPES (*A Regular Subscriber*).—During the winter months keep the outside roots of the Vines covered a foot deep with long stable manure, and over that a tarpaulin, or other material, to exclude excessive cold and wet. Shankling is caused by the roots not supplying sap sufficiently fast to keep pace with the growth of the fruit. It is the same as gangrene and sloughing in the human frame, caused by the want of a sufficient supply of blood to the part.

CONSERVATORY AND GREENHOUSE (*M. M. Mannamead*).—There will be quite enough of sunlight for the purpose named. Plenty of good Vines

even are grown without more sunlight; in old lean-to houses facing the south, and opaque walls at each end, they would not get more. The flowering plants most suitable to such a place will do very well. Chloroform has been tried by practical bee-masters, and found fatal to the bees. We should like to hear of more extensive and varied experiments with it.

HORNETS (*A New Subscriber*).—If you destroy their nests, and suffocate the inhabitants at night, you probably will not be visited by the same kind of marauders next year.

GRAPES WITHOUT BLOOM (*Stockton-on-Tees*).—We can give no reason under the circumstances for the want of size and bloom, except the Vines receiving a sudden check. We believe your Grapes would have been better if you had given no artificial heat at all, except a very little just when they were in bloom. If fire heat were used until the end of June, and then stopped all at once, and especially with the ventilators open night and day, there might be a sudden check by a reduction of temperature on a cold night, which the Vines would not have felt so much if they had not been used to fire heat. After June we have weather warm enough to suit the Vine in general; but if heat has been given, that heat should be applied any time in the season, when cold nights and wet, cloudy days render such a stimulant necessary. If this care and attention cannot be given, then the less fire heat the Vines have before they ripen the better they will do. Try less heat, more ventilation, fewer bunches, and the bunches more severely thinned.

OLEANDER CULTURE (*S. W. F.*).—We have previously, and not very long ago, given explicit information on this subject. We will just repeat the main points. The Oleander naturally is a marsh plant and a dry-baked mud plant alternately. It blooms uniformly at the points of the shoots, made and ripened the previous season. These facts furnish the *rationale* of successful culture. Any light soil may be used when the plant is young, but when established the soil should be good stiff loam, with a fair portion of rotten cowdung. The treatment, however, is more important than the soil. Here, for instance, is a plant cut down, and commencing to grow in March; encourage it as much as possible with water and a fair amount of heat. Thin out the young shoots, so as to let those left have plenty of air and light. No stopping of shoots intended to bloom next season must be thought about. Wherever grown, harden off so as to get the plants out of doors by the beginning of August, and for a few days keep them in a shady place; then full in the sun; watering as they require it. By the middle of September place them against a south wall, and give not a drop more water than will keep the leaves from flagging. Take means to prevent them being soaked with rains. House before frost; a cool greenhouse will do. Keep them dryish and cool all the winter; and as soon as the heat of the spring increases, or you put them into heat, then water must be gradually given; and as fresh growth commences the flower-buds at the points will show themselves. When the plants are intended to bloom every year, there must be a number of young shoots coming on to replace those that are flowering, which may be cut out as soon as the flowering is over, and that will throw more strength into the succession-shoots, which must be managed as above.

CLEMATIS LANUGINOSA—**TRITOMA UVARIA** (*Paul Ricaut*).—*Clematis lanuginosa* with a west aspect and rich loamy soil, on a dry bottom, and to be planted the first fine day. We cannot say how high it will grow. It has not been long enough in cultivation to tell that. We removed six splendid plants of *Tritoma uvaria* this 25th of October for our front garden, made the soil as if for a Grape Vine, docked off five feet of the length of the leaves, and left about eighteen inches of the stumps. We shall treat it in summer as a marsh plant, and at the crystal lake of the Crystal Palace it will be seen, next year, in opposite pairs as a water-plant standing on pots with an inch of water over them. Now is the best time to move this plant. It should never be potted in the autumn; but when it is intended for a pot, this is the time to begin with it, by taking it up, cutting down the leaves as low as ours, and, in addition, to cut back all the roots to six inches, then to plant it out in some warm place in rich and very light compost of rotten leaves, rotten dung, and the sweepings of the framing-ground and potting-shed. In this it will root away all the winter, and when the leaves push up two or three inches in April, take it up and pot it in a very large pot, in Grape-Vine soil. The quantity of fibrous roots will then be enormous. After the end of May the pot should stand in a saucer all the summer, and the saucer be kept full of water all the time. Even out on the lawn, there is no end to the water it will take, and ward us for it most abundantly.

DAPHNE LEAVES TURNING YELLOW (*A Lover of Flowers*).—The plant, late as it is, must be repotted, disturbing the roots as little as possible. Give it at once, before repotting, some weak liquid manure. The plant is starving. The Ice-plant, *Mesembryanthemum crystallinum*, is an annual, and fresh plants require raising from seed every year.

HEATING BY HOT WATER (*A Constant Subscriber*).—Notwithstanding your sketch we do not exactly know the size of your house; the lights rest on a parapet five feet in height at one end, and what height at the other end we cannot make out, though somewhat high, so as to form a conservatory. If the height is considerable, your two single inch-pipes will not be enough. We should like a more concave or saddle-back form for your boiler above the gas-burners, so as to have as much heat absorbed as possible. The two-gallon flower-pot as a cistern is a good idea, and so is the air or escape pipe.

FLOWER GARDEN PLAN (*T. E. L.*).—There is not one inch more to spare on your beautiful front lawn to plant on. Two or three Rhododendrons might just be planted on the grass, in the centre between the two composition flower-beds, and not more than four feet from the walk, but we prefer it as it is. The two farthest-off beds in each group should be yellow and scarlet—say, 15 and 18, yellow *Calceolarias*, and 16 and 19, scarlet Geraniums. The rest of the beds to “work” from each centre, 1 and 31; 20 should be scarlet, 24 white, 33 yellow, and 35 scarlet or bright rose; 21 white, and 23 yellow, all in the farthest group; 8 and 11 white; and 9 scarlet or purple; 14 yellow; and the rest just as you fancy, any colours in any way will come right, if you keep our colours as here put, and size the plants to the extent of each bed. If your first plan had been filled up, we would have been at sixes and sevens with you next season.

REMODELLING A GARDEN—**LIST OF ROSES** (*A New Subscriber*).—Your plan for remodelling your new place is exceedingly good, and will make an Elysium of it. We can see nothing that requires altering, and without being on the spot, we could not tell well how to do so. We never give plans

of original flower-beds, but your beds ought to be on the promenade plan, *running down on both sides* next your intended avenues. Let nothing intercept the view down the centre; but you might have two handsome groups of flower-beds, right and left, up at the front of the house; also, large half-moon-shaped beds of Roses, and of choice evergreens on each side, with the straight, or nearly straight, sides next the walks. We would not block out the Thames, at the bottom, for any consideration. So you see how people differ in such things, but have your own way, there is no principle involved in such things. We must not recommend one nursery over another. The best evergreens for you are *Laurustinus*, *Arbor Vitæ*, *Chinese Privet*, *Arbutus*, *Alaternus*, *Phillyrea*, some handsome Portugal Laurels, many variegated Hollies, the most silvery and the yellowest; groups of bush Yews *under the largest trees*, also, *Aucuba*; and if the soil suits them, lots of *Rhododendrons* and as many *Cypresses* as you can get, and you must have two pairs of *Araucaria imbricata* up near the house, and allow them plenty of room. Avoid common Laurels as much as you can, they give the idea of something ugly to hide. But is it not strange for any reader of THE COTTAGE GARDENER to ask for climbers and best Roses, as long lists of them are in every one of the volumes? There were twenty of the best Roses named last month, and over fifty of the very best last July. The best Roses are always at the London Shows, and in our reports of them. But here is a long list for you, just because you made that tasteful plan:—

CLIMBING ROSES: *Crimson Boursault*.—Ruga Ayrshire, Dundee Rambler, Bennett's Seedling. *Sempervirens*.—Myrianthes Rénonculé, Félicité Perpétuelle, Princess Maria, Rampant, Donna Maria, Leopoldine d'Orleans.

WHITE AND YELLOW BANKSIAN: *Noisettes*.—La Marque, La Biche, Ophire, Fellenberg, Duc de Luxembourg, Triomphe des Rennes. *Hybrid Perpetuals*.—Lord Raglan, Lord Palmerston, Duke of Cambridge, Général Jacqueminot, Baronne Prevost, Duchess of Sutherland, Madame Masson, Madame Vidot, Souvenir de Reine de l'Angleterre, Souvenir de Leveson Gower, Jules Margottin, Géant des Batailles, Léon des Combats, Louis Perronny, Auguste Mie, Triomphe de l'Exposition, General Simpson, Evêque de Nîmes, Caroline de Sansal, Général Castellane, and Mathurin Regnier. *Bourbons*.—Souvenir de la Malmaison, Queen of Bourbons, Armosa, Madame la Comtesse, Du Petit Thouars, Monsieur Jard, and Empress Eugénie. *Hybrid China*.—Paul Ricaut, Vivid, Paul Perras, Coup d'Hebe, Blairi No. 2, Chenedole, and William Jesse.

FERNS (*C. J. H. B.*).—Your Ferns are, 1, *Cystopteris fragilis*; 2, *Polystichum angulare*; 3, *Pteris aquilina* (seedling); 4, *Cheilanthes odora*. Let the fallen leaves remain, so that they do not cover the fronds of the Ferns. *Polystichum lonchitis* will endure the winter with you. We do not think the Ferns will require watering in spring before the fronds appear.

BUDDED ROSES (*W. W.*).—They do not require extra protection. The worsted or bast over the wound is sufficient.

NAMES OF FRUIT (*A South Lancashire Incumbent*).—The Apple is *Northern Greening*, and the Pear *Aston Town*. (*Kilkenny*).—No. 1. *Ross Nonpareil*. 2. *Pinner Seedling*. 3. *Golden Russet*. 5. *Alfriston*. 6. *Striped Beefing*. 10. *Beurré de Capiaumont*. 12, 15, and 18. *Easter Beurré*. 13. *Beurré Diel* (?) 14. *Winter Nelis*. 17. *Catillac*.

NAME OF PLANT (*A Country Subscriber*).—Your "Burning Bush" plant is called "the Artillery Plant," *Pilea muscosa*. It is a stove plant, properly; and very amusing when wetted on a hot day to see its anthers bursting and throwing off its pollen like smoke from a gun.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

NOVEMBER 18th and 19th. WEST OF SCOTLAND ORNITHOLOGICAL ASSOCIATION (Pigeons and Canary Birds). *Sec.*, Thos. Buchanan, 74, Argyle Street, Glasgow. Entries close the 7th of November.

NOVEMBER 19th to 23rd. CRYSTAL PALACE. (Canaries and British and Foreign Cage Birds). *Sec.*, Mr. W. Houghton.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. *Sec.*, Mr. J. Morgan, Bingley Hall, Birmingham.

DECEMBER 28th and 29th. SHEFFIELD AND HALLAMSHIRE (Fancy Pigeons). *Sec.*, Mr. Inman New, Sheffield. Entries close December 12th.

DECEMBER 28th and 29th. POULTON-LE-FYLDE. *Sec.*, Mr. J. S. Butler.

JANUARY 7th, 1860. BRADFORD. (Single Cock Show.) *Secs.*, Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford.

FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). *Sec.*, Mr. W. Houghton. Entries close Jan. 14th.

N.B.—Secretaries will oblige us by sending early copies of their lists.

CRYSTAL PALACE EXHIBITION OF CANARIES,

AND BRITISH AND FOREIGN CAGE BIRDS.

It is with much pleasure we have received the announcement of the second exhibition of cage birds to be held at the Crystal Palace, Sydenham, on Saturday, Monday, Tuesday, and Wednesday, the 19th, 21st, 22nd, and 23rd of November. Such gatherings of our beautiful feathered pets cannot but be highly gratifying to all fanciers, and interesting and amusing to the numerous visitors. So well adapted is the building for such purposes, and so ably is it arranged by the indefatigable Secretary, Mr. Houghton, that it can scarcely fail to give satisfaction to all. In comparing the schedule of prizes with that of last year we perceive some alterations. The addition of classes for groups of various birds is also an advantage; and the classes for foreign birds have been divided and extended. Another year we hope to see some additions and alterations in the classes for Canaries, when, we think, the Show will be nearly perfect; and, regarding this Exhibition as taking a very prominent place among our

Canary Shows, we could wish to see it the very first of our national exhibitions.

The improvements we would suggest are a separate class for the Grass or Parrot-green Canaries, and also one for Quaker or Cinnamon birds; also that regular Pies and German birds should each have separate classes. The six classes for Belgian Canaries we think might be reduced to five—namely, two for Erect Belgians, Jonque and Mealy; two ditto for Hooped Belgians; and the fifth for any other coloured Belgians: for to us it seems that Variegated and Marked Belgians are identical. The second class for Crested Canaries might include all Crested Canaries except those in the present class or classes.

Linnet mules, we consider, could be contented with one class for all colours; while the last class might be subdivided into a class for any other variety of Canary, and a separate class for any other mules or hybrids from Canaries not previously named.

Among the British birds we think the Siskin or Aberdevine should rank with the Finches; and we are sorry to miss the last year's class for Buntings.

Lastly. We are of opinion that the class for hybrids or mules of any kinds not bred from Canaries deserves more consideration, considering the value of the birds and the extreme difficulty of breeding them. *En passant*, we would remind the Judge to be more careful, and not be so imposed on as to award a high commendation in this class to any inferior bird, as was done last year to a common Bunting as a hybrid between a Lark and a Sparrow.

We much enjoyed our day at the Show last year, and hope to do so this; and we cannot do better than advise all fanciers to visit it. We conclude by hoping there may be many such annual meetings of our feathered friends and their admirers.

DUCKWINGED GAME—SPANISH CHICKEN.

YOUR decision in answer to my question respecting the Duck-winged Game cock purchased by me at the Crystal Palace is opposed by Mr. Brent, who invites a fair discussion of the subject, that good may arise. Your reply to "H. M., Glasgow," contains good sound evidence, not easily cancelled by such arguments as Mr. Brent's question:—"Can a Duckwing, bearing in its colour the marks of mixture with the Reds, be considered a pure or unmixed colour any more than a white fowl having red on the back may be called a pure or unmixed white?"

We know what a white fowl ought to be, but have yet to be satisfactorily acquainted with the colour he terms Duckwinged; therefore his argument is of no value whatever, and I suspect he is as much in error about the matter as I know him to be respecting the Spanish chicken, Pen 22, at the Crystal Palace. Having seen the bird in question not longer ago than last week, but not wishing to be offensive to Mr. Brent, I will forbear stating the remarks which passed between myself and the owner of the bird. If he will call and see the bird now, I am sure he will readily admit the error in judgment he has committed.—T. H., Stoke Newington.

THE COMING BRADFORD SHOW.

I HAVE just received the prize list of the above Show, and permit me to say a few words as to the face of the list. Much has been said, and many the objections raised by exhibitors, having with their Duckwinged or other varied colours of Game cocks always to contend against the Reds, which, generally, in a show of single cocks, leaves them very little chance of a prize.

The coming Show, however, provides that protection for the Duckwing and others that has hitherto been withheld from them. They are to have a class to themselves, and also to be allowed to compete against Reds, if their owners think them of sufficient merit; whilst the Reds are not allowed to compete for more than one prize. I think this a most just classification; for in shows of single cocks, other colours than Reds are seldom or ever noticed by the Judges.

The list besides the Game prizes contains separate classes for each brood of single cocks as sweepstakes, and the deductions for use of pens, &c., are so reasonable, that I think no one can for a moment raise an objection when we look at the list of two or three of our late Shows. Instead of 3s. 6d., 1s. 6d. are deducted from large brood entries, and 1s. each entry from Hamburgs, &c. I hope that the entries will be such as to remunerate the proprietors of the Show, on account of offering to the public such an opportunity of exhibiting their fowls at so reasonable a charge.—E. H.

NOTES ON THE CRYSTAL PALACE SHOW.

As "XERES" wishes me to settle the question respecting Mr. Brent's remarks on my pullet—what Mr. Brent calls a cockerel, I beg to state has just commenced laying, and I have no doubt I shall be able to supply Mr. Brent with a batch of her eggs in the course of a fortnight or three weeks. I am really at a loss to know how Mr. Brent could make such a mistake as to call her a cockerel.—R. WRIGHT, 2, *Porter's Place, Holloway*.

WHITE COMB—TARDY MOULTING—COMB OF GOLDEN-PENCILLED HAMBURGH.

I HAVE a Golden-pencilled Hamburg cock that is just getting over moulting. Before he began, his ear-lobes were quite right; but since, they have streaks of red on them. His comb also does not seem to be quite right, for it is rather scurfy and white. Can you form an opinion as to what is the matter with him, and suggest any remedy? What is a good thing to give hens that are moulting and do not seem to get on with it very well, and how long ought they to be over it? Do you think that a hen that is just beginning to moult, will be in a fit state to send to the Birmingham Show? Ought the comb of a Golden-pencilled Hamburg cock to terminate in a long bold spike behind, or does it matter about its terminating in *one* point behind?—C.

[Your Golden-pencilled Hamburg cock is suffering from white comb. It is easily cured by being kept rubbed with compound sulphur ointment; but as it is an indication of great internal heat, you should purge him freely with castor oil. Give him two doses of a table-spoonful each, at three days' interval, and follow with Baily's pills. If his deaf ears have been perfectly white, they will likely be so again. Moulting often causes these changes; but it is fair to tell you, in order that your dependence may not be on him alone, that in old birds the white does not always entirely return. Tardy moulting is too often the effect of feeding on stimulating food, as heat of body acting on the feather in process of formation, dries it and prevents its growth. You must purge with castor oil, two doses at three days' interval. Each dose a table-spoonful. Feed on ground oats, and if the fowls have not grass, give them lettuce. Keep them well fed and cool, but let them roost in a ventilated place, free from draughts. If the hen is only beginning to moult, she must use her time well to be ready for Birmingham, but if she is partly through it, she may easily be ready. The cock's comb should terminate in *one* point, which should be stout at the base, tapering to the end, and incline upwards.]

THE BIRMINGHAM CATTLE AND POULTRY SHOW.—Now that the autumn meetings of our numerous local agricultural Societies are terminated, attention will be given, and that immediately, to what are called our Christmas exhibitions, but which, from the early period they are fixed for this year, scarcely deserve that title. With regard to our own gathering in Bingley Hall, we must remind intending exhibitors that they should at once obtain the requisite certificates, as the entries in all departments will close on the 1st of November. Already, indeed, the applications of this nature to the Secretary have been very numerous, in some cases from gentlemen who have not previously been exhibitors; and we have every confidence that the show of stock will prove to be quite equal if not superior to any which has been yet held in this town. With regard to the collection of poultry there can be no doubt that, as in former years, still further improvement will be manifested in all our principal breeds, the number of zealous and intelligent breeders of poultry increasing every year, and the competition for prizes becoming consequently more severe at each succeeding meeting. With respect to the general arrangements, but few changes have been made from last year, and the programme already issued supplies all the information which exhibitors can require.—(*Midland Counties Herald*.)

IVY HONEY.

I HAVE just taken off a small super from one of my hives (No. 2), in which the bees were comb-making and *honey-storing* only two days ago, but which they have entirely deserted this morning,—the first frosty morning of 1859. As I expected, the honey is, unquestionably, gathered from ivy flowers. It is of a clear amber colour, highly scented, precisely like the scent of ivy

blossoms, and of a peculiarly bitter flavour. There is rather more than a fourth of it altogether, besides a small quantity in another super on No. 1 stock. Is there any parallel to this?—B. & W.

BEE-KEEPING IN DEVON.—No. XIII.

A "DOUBLE CASSETTE"—FEEDING THE HUNGRY—LA REINE EST MORTE!—THE BRITISH MUSEUM—A PROPHECY FULFILLED—DRIVING—A PROTRACTED SEARCH—INTRODUCTIONS TO ROYALTY—A PALPABLE HIT—AN UNEXPLAINED HIATUS.

My experiment of establishing an artificially-formed stock of bees with a Ligurian queen appearing likely to succeed, I became desirous of possessing more than one colony of these interesting strangers; and accordingly lost no time in procuring two additional queens, one for myself, and the second for my friend, Mr. S. B. Fox. Having, therefore, received a letter on the 23rd August advising me of the despatch of "one double cassette containing two Ligurish bee queens," I impatiently anticipated their arrival. Day after day passed on, however, and still no "cassette" was forthcoming, until the conviction forced itself upon me that, when it did arrive, its contents would be of little value. At length, on the 27th, the long-looked-for little deal box was placed in my hands and at once applied to my ear. Unfortunately, this time no buzz arose to bear witness to the truth of the statement on the box-lid that it contained "living bees." All was silent as the grave; save that, as I turned it over, I could distinguish the muffled sound of some apparently soft substance falling from side to side. Hastily applying a screwdriver, I wrenched open one compartment of the "cassette;" and there, as I anticipated, I beheld a mass of dead bees, which I at once turned out on a sheet of paper. Contrary to my expectations, a few remained clinging to the sides of the box, not quite dead, but so weakened as to be perfectly incapable of flight. Amongst these I distinguished the queen; and having satisfied myself that she was uninjured, I supplied them with some small pieces of honeycomb, and turned my attention to the unfortunates in the other compartment. In this case my misgivings were unhappily but too well founded—only one bee remained alive, and that one not the queen.

The seasonable supply of food which I had furnished to the few surviving bees so recruited their strength, that when I delivered them over to Mr. Fox they appeared quite able to take wing, and were making the most vigorous efforts to escape. What success attended their introduction to this gentleman's apiary will doubtless be in due time related by him in some future number of "Apiarian Notes."

Being very desirous of ascertaining what species of bee I was taking so much pains to naturalise in this country, I was fortunate in obtaining an introduction to Mr. Frederick Smith, of the British Museum, by whom I was assured that the one I sent him was undoubtedly the *Apis Ligustica*. He also informed me that the only specimens in the Museum were those of workers only, neither queens nor drones being represented. This deficiency I was able in part to remedy by presenting to the Trustees the dead queen whose untimely end I have recorded; and in due time received their thanks for my "liberality" and "valuable contributions" of "a specimen of *Apis Ligustica* from Switzerland."

My second adventure in Ligurian queens having resulted so unfortunately, I immediately despatched a letter to Switzerland, stating the result, and requesting that another "double cassette" with two queens might be forwarded without delay.

Pending their arrival I turned my attention to No. V., the stock with a Ligurian queen whose adventures have formed the subject of two former communications. On the 3rd of September I first had the pleasure of seeing young Ligurians on the wing, thus literally fulfilling the prophecy recorded in a former article, that in thirty days "people would become yellow." The excitement produced by feeding having subsided, it soon became evident that this artificial colony was, as compared with my other stocks, somewhat deficient in numbers—that main element of prosperity in bee-keeping. A populous condemned hive about a mile off was accordingly driven; and the bees having been deprived of their queen, transferred their allegiance to the alien sovereign during the night of the 9th of September. In this case there was rather more fighting than usual, two or three hundred lives being sacrificed. The good effects of increased population became, however, immediately apparent, and the stock has since worked with redoubled strength and activity.

The inhabitants of several condemned hives having been offered to me, I drove a couple on the 8th and 9th of September, deprived them of their queens, and left them on their original stands till the Ligurian queens should arrive.

Oh the 10th of September I once more received a "double cassette," and this time there was no doubt that both compartments contained "living bees."

I had determined upon varying my course of proceeding; and being desirous of placing the Italian sovereigns at the head of two really good colonies, I expelled the inhabitants of two of my strongest stocks, Nos. I. and III., installed the strangers in the abandoned hives, and proceeded to search for the two English queens. In the case of No. I. the capture was effected with comparative ease; but with No. III. it was far different. There was fully thrice the number of bees as compared with any stock I ever drove; and the difficulty of discovering their sovereign was, of course, infinitely increased. In vain did I turn them over and over again—in vain did I repeatedly knock them out of the empty box in which they had taken refuge. Hour after hour passed, and still my task was unfulfilled; and it was not till I had almost given it up in despair that a casual glance revealed the object of my search.

Allowing these unfortunates once more to take refuge in the empty box from which I had so repeatedly and so unceremoniously ejected them, I placed the two boxes of queenless bees on their original stands, and impatiently waited the approach of evening, when I intended restoring to them their habitations, and at the same time presenting them to their future sovereigns. No sooner had night closed in than a smart blow dislodged for the last time the rightful inhabitants of No. III.; and their own hive being forthwith placed over them, they were in this manner introduced to their future monarch. The same course of proceeding was attempted with No. I.; but in this case, although the blow was unquestionably vigorous enough to dislodge any cluster of reasonable bees, not one fell on the cloth, nor did the slightest sound give token that they were aware of the assault. This tenacity and obstinate silence were, however, speedily accounted for. Cautiously raising and carefully inspecting the interior of the box, I had the mortification of discovering that it was completely empty!—A DEVONSHIRE BEE-KEEPER.

P.S.—The apiarian readers of THE COTTAGE GARDENER have, doubtless, been much interested by the articles of "B. & W." on the subject of the novel manner in which he stocked his new apiary. As that excellent apiarian does me the honour of asking my opinion on the facts he has recorded, I can do no less than state that I consider he has done excellently well with the means at his disposal. With regard to the question of artificial *versus* natural swarming, my own practice during the past season, in the course of which I had but two swarms, and these artificial ones, affords the most conclusive proof that I am fully alive to the advantages of the former, although, from the amount of apiarian skill which it requires, it is not likely very generally to supersede the natural mode of increase.

LIGURIAN BEES.

As we have now fairly established in England, in at least two apiaries (that at Muswell Hill, and that of "A DEVONSHIRE BEE-KEEPER," to whose enterprise, by the way, we are all indebted for this interesting addition to our domestic stock),—as, I say, we have in this country several colonies of Ligurian bees, I venture to hope and suggest that every possible way of increasing their number may be adopted next year, with a view to the character and qualities of these bees receiving at the hands of our best apiarians the thorough trial which they deserve, previous to their general dispersion throughout the country, if approved of.

As having had much experience in multiplying swarms by artificial means, I may be allowed to suggest the following plan, as one deserving of adoption and the best I know. I must presume that these Ligurian queens are in bar-hives, and that they prove themselves fairly prolific mothers.

Let, then, a number of similar bar-hives be constructed, and into each of these, from time to time, during the course of the summer, let there be carefully transferred from the Ligurian stock a bar with comb attached, containing eggs and young bees in every stage of progress.

I think it would be well that every full-grown bee should be previously swept off this comb back into the old hive, so as to prevent all danger of fighting between them and the bees of the

other stocks to which the comb is to be given. Then, in the middle of a warm and sunny day, when the bees are chiefly abroad, let this comb, carefully fixed in an empty bar-hive, be put in the place of any strong stock of common bees that may be available for the purpose. This stock may be removed to some distance; but it would be well first so to disturb it as to cause a good many more of the bees to leave it than might happen to be foraging in the fields. I think, moreover, that I would stop up its entrance till the evening. The other bees would soon take possession of the empty bar-hive, and in three weeks' time replace their missing English queen with a young artificially-reared Ligurian queen, whose progeny would, in due course of time, become the sole possessors of the hive. The English stocks chosen for this purpose must be in the same, or in a very closely-adjointing apiary, otherwise the absence of Ligurian *drones* at the proper season would prove fatal to the success of this plan of increase.

One Ligurian stock losing one bar only, from time to time, might in this manner become the parent of a dozen stocks at least in the same season; and the earliest of the young swarms (say those formed in May) might also, in a warm spring, be made productive of two or three swarms in the same manner, without becoming too much weakened. For my own part, I should not scruple to take *two bars every week* out of the Ligurian stock during the months of May, June, and July, and to work these swarms, artificially formed, in the manner above detailed, during at least a whole month, from the middle of June to the middle of July.

If either the Secretary of the Apiarian Society, or "A DEVONSHIRE BEE-KEEPER," would work this plan well, or any other equally promising, I doubt not that they would find ready purchasers of Ligurian stocks next summer and autumn at a fair price.

I think there ought to be one good Ligurian stock left pretty much to itself, so as to encourage the propagation of *drones*. Still, even this stock might be made to yield a few bars without in the least hindering the development of *drones*; but no bars should be taken out till a fair number have been seen abroad. Perhaps the best plan would be to make a swarm out of this hive in the same artificial manner, *so soon as many drones are hatched*. For *drones* which join swarms are generally (perhaps always) allowed to remain alive till late in the season, whereas the earliest-hatched *drones* are frequently destroyed in cold springs in their own hives.—B. & W.

OUR LETTER BOX.

PARALYSED LEGS (*J. M.*).—This usually arises from the bursting of a blood vessel on the brain, caused by over-feeding, violent frights, and the like causes of excessive circulatory action. Pepper pills were the worst medicine you could give a bird thus affected. Keep it perfectly quiet, give soft food in very moderate quantities, and consisting chiefly of boiled potatoes and a little barley-mead, with as much green food as the bird will eat. Such attacks are usually past all remedy. The book you refer to is amusing but not practical. The most full is "The Poultry Book."

LIMB BURG COCKS ENTIRELY SPANGLED (*F. C. H.*).—The cocks you mention would not be desirable as exhibition birds. Such were formerly called Siberian and Circassian. They are to be produced by a cross between the Pencilled and the Spangled; or they may appear by one of those vagaries which we can only explain by throwing back some cross which has long lain dormant. The bird for exhibition should have a white tail with a black spangle on the tip of it; a well-spangled breast; a laced and barred wing; a perfectly white deaf ear, not larger than a sixpence; and a well-spiked and piked comb, well and firmly seated on the head, and the pike inclining upwards. Jerusalem Artichokes do not seed in England.

ROUP (*A Liverpool Subscriber*).—Worms are occasionally found in the intestines of fowls, and have no connection with roup. This disease is an inflammation of the mucous membranes of the mouth and throat of the fowl, and if it proceeds to an advanced stage partakes of the nature of glanders in the horse. Bathing the head frequently in tepid water, doses of castor oil, soft food, dry warm lodging, and small doses of sulphate of copper dissolved in the soft food, are the course of treatment to be adopted, and have been frequently detailed in our pages.

PIGEONS STRAYING (*W. W.*).—The composition said to attach Pigeons to their home is thus spoken of in Mr. Brent's "Pigeon Book":—"The salt-cat is composed of about equal quantities of a clean, unctuous loam, such as brickmakers use; a coarse, gritty sand, or fine gravel, in which the grains are about the size of pins' heads; and old mortar: to this is added a small quantity of baysalt. Some persons, to make it more attractive, add aromatic seeds—such as cummin, anise, coriander, and carraway. The whole should be mixed up with chamber-ley, into the consistency of mortar, and placed in a crock, the sides of which are perforated with many holes large enough to admit the Pigeons' heads, and covered with a lid to keep off the weather. The Pigeons will take great delight in it. It is said that this preparation attaches the Pigeons strongly to their abode, and also that it prevents their picking the mortar from the house-roof, on which account Pigeons are objected to."

ULCERATED FOOT IN RABBITS (*J. V.*).—Try the remedy recommended as a cure for "foot-rot" in ferrets, at page 13 of our present volume.

WEEKLY CALENDAR.

Day of M th	Day of Week.	NOVEMBER 8—14, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
8	Tu	Hermannia plicata.	30.281—30.265	49—33	N.	—	7 af 7	20 af 4	37 4	13	16 8	312
9	W	PRINCE OF WALES BORN, 1841.	30.387—30.342	44—21	N.E.	—	9 7	19 4	55 5	14	16 3	313
10	Th	Lambertia rosea.	30.351—30.292	46—24	N.E.	—	11 7	17 4	rises	☺	15 58	314
11	F	Leonotis leonurus.	30.289—30.132	48—23	E.	—	13 7	16 4	14 a 4	16	15 52	315
12	S	Leucocoryne ixioides.	30.100—29.862	44—26	E.	—	14 7	14 4	0 5	17	15 45	316
13	SUN	21 SUNDAY AFTER TRINITY.	29.643—29.360	44—40	S.E.	—	16 7	13 4	1 6	18	15 37	317
14	M	Mignonette.	29.523—29.372	43—33	N.	—	18 7	11 4	18 7	19	15 28	318

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 51° and 35.7°, respectively. The greatest heat, 63°, occurred on the 12th, in 1841; and the lowest cold, 18°, on the 9th, in 1854. During the period 112 days were fine, and on 112 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

CONTINUE to admit air in favourable weather, but not in currents; shut up early; use water sparingly, and always tepid—giving little or none to succulents and plants in a state of rest.

FLOWERS.—Where there is a pit at liberty it may now be prepared for forcing flowers. The glass must be thoroughly cleaned, as light is of importance at this season. The tree leaves when gathered to be mixed with a portion of well-prepared dung, to produce an early action, and about nine inches of tan or sawdust placed over them in which to plunge the pots. The plants, if in proper condition, may be introduced immediately—viz. Azaleas, Camellias, Persian Lilacs, Gardenias, Moss and Provence Roses, Rhododendrons, Sweet Briars, Honey-suckles, &c. The Hyacinths, Narcissi, Tulips, and other bulbs that have been potted early, as advised in due season, may be introduced successively in small quantities when the buds are an inch or two long, plunging them in any out-of-the-way part of the pit, covering them for a time with four or five inches of old tan.

HEATHS and NEW HOLLAND PLANTS.—Water them sparingly. Dry the atmosphere if necessary by lighting a slight fire on fine days. Give air freely.

PELARGONIUMS.—Shift and tie out as they may require. A few of the most forward may be accelerated by a little heat.

PRIMROSES (Chinese).—Water with caution. Two or three small pegs to be stuck into the soil around each, to keep the stem and plant erect in the pot. Thin out weak and deformed bloom-buds.

STOVE AND ORCHID-HOUSE.

The resting section of Orchids should now be allowed to settle down gently to their annual repose by withholding water at the root, by diminishing the amount of atmospheric moisture, and by giving a more liberal ventilation than in the growing season. The more evergreen kinds—such as some of the *Aërides*, *Dendrobiums*, *Saccolabiums*, *Vandas*, &c., to be favoured with the warmest situation.

FORCING-HOUSES.

ASPARAGUS.—Where it is wanted early, preparations should now be made for forcing it. Any old Cucumber or Melon-bed that still retains a gentle heat may be used for the purpose. The plants to be placed as closely as possible, and covered with three or four inches of any light soil. The application of linings will supply any deficiency of heat that may be caused by severe weather. When the heads come up, to be supplied with an abundance of light and air.

CHERRIES.—Look over the plants in pots, and if they require shifting into larger pots it may be done at once. The pots to be plunged in coal ashes, or any other loose material, to protect the roots from frost, and where they will commence rooting immediately.

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FIGS.—If the summer and autumn attention has been given to them, as advised, very little, if any, winter pruning will now be required; but if such is necessary it may be done as soon as the leaves fade. The trees to be carefully washed clean all over with soap and water, and then painted over with a mixture composed of one ounce of soft soap and one ounce of sulphur to a quart of water. Trees in pots to be shifted, or top-dressed, as may be necessary. Shifting is only recommended when it is desirable to increase the size of the trees. To be afterwards placed in a shed with the pots plunged in leaves.

PINES.—The plants on which the fruit has recently appeared to be encouraged with heat and moderate moisture; but those that are likely to “show” for the next two months to be supplied with a temperature to keep them progressing slowly that they may be just beginning to swell their fruit when the days and sun are lengthening and strengthening. The state of temperature of the beds recently renewed with tan to be examined frequently, as they sometimes become suddenly too hot. Now, when Oak and other tree leaves can be collected, it is advisable to use half leaves and half dung for lining the pits heated by fermenting materials; the leaves contribute to make the heat more regular and lasting. Give no water to the succession plants during dull weather except to such plants as are near the flues and pipes, and are apt to get over-dry in consequence.

SEA-KALE.—If this delicious vegetable is wanted early, a small hotbed should be made in some convenient place; the roots to be taken up and placed upon it, covered with a little light soil, and protected by boards or any other contrivance most convenient and suitable to exclude light and the inclemency of the weather.

RHUBARB.—The same as advised for Sea-kale. Where a Mushroom-house is at work is the best place for both.

VINES.—All fading leaves to be removed from the Vines on which fruit is hanging, and the house to be kept dry, light, and airy, and free from anything likely to create mould or damp.

WILLIAM KEANE.

WINTERING BEDDING STOCK OF PLANTS—GRAFTING GERANIUMS.

“THE Orange tree being one of the finest greens, and as tender as any, I shall here name the most tender that must be housed with care in winter, and how to order them, after I have mentioned our common greens that grow without that care,” writes Samuel Gilbert, whose experience, grafted on that of his own father-in-law, dates back over two hundred years. The common “greens” of those days were the “evergreens” of ours, and consisted of Yew, the Fir, Tree of Life (*Arbor Vitæ*), Cypress, Stone Crop Tree (?), Evergreen Oak, Holly, Laurel, Bay, Holy Holly, Box and Gilded Box, Evergreen Hawthorn, Staff Tree, Privet, Phillyrea, Spanish Broom, English Broom, and Gorse. All these did “without care” in winter. “With more care,” Phillyrea, striped; Laurustinus, of several sorts; Myrtles, of several sorts; Yellow Indian “Gessimine;” the Rose Bay, or Ole-

ander; the Indian Bay; and, "with most care," Lemons and Oranges; but, "to save room, we will here name other nice plants that must have the like care. The same directions for some will serve them all." The bloody double Wallflower, *Anomum Plinii*, *Geranium nocte olens*, Tuberose Hyacinths, blue Borage-leaved Auricula, Bear's Ear Sanicle, Marum, and *Marum Syriacum*. These plants are set in cases, and with Oranges and other tender plants housed in winter." These were not Wal-tonian "cases," but Orange-boxes, and Myrtle-tubs, instead of pots.

That was the first time that a greenhouse *Geranium* was mentioned in our garden books. *Geranium nocte olens* (night-smelling). What might that *Geranium* be—a Horseshoe, or plain, or greenhouse *Pelargonium*, or what? Neither the one nor the other, but one of the tuberous-rooted kinds which is now called *triste*. Its flowers scent a whole room at night; but there is no beauty in them. Gilbert says of it, "This is the only Crane's Bill worth our notice, and so called, because it smelleth sweet only in the night. It hath a great root like a *Pæony*, with large, jagged leaves. The flowers come forth in this month (April). The plant is tender, and, therefore, set in a pot, and grown in winter as the Cardinal's flower, or housed and kept dry in winter, for any moisture rots the roots."

So, at the beginning, there were two ways of wintering the one *Geranium* "worth our notice." To keep it green, growing in a pot, and in the greenhouse; or to dry it off in the autumn, and winter it in-doors in a dry state. The first *Geranium* worth notice, therefore, was and is very different from all our bedding *Geraniums*; but there are so many people in a fix just now from having had their *Geraniums* frosted, that I would advise the adoption of the second plan, as with *nocte olens*—that is, "to be dried and housed," and to be kept as dry till the beginning of January.

Not an eye or an inch of a Scarlet *Geranium* has been killed below the surface of the ground, where the frost told the hardest; therefore, there is yet time to save more than enough to give a full crop of cuttings in the spring, late or early, according to convenience. But there is no way of doctoring frosted *Geraniums* half so good as that of drying them, as if they had roots like *Pæonies*, in the first instance; then the frosted parts, that would now ruin the rest, by dying back, or moulding by inches, will dry off, and be like so much cork by Christmas; and when the lots are looked over, all the small fibrous roots, and all the corky parts must be cut clean away, and the stumps be put into shallow boxes with moist earth, and no watering for the first month, or till leaves come forth; unless, indeed, the soil gets too dry for allowing young roots and leaves to be made. Altogether, it will be an up-hill work, but with care and perseverance there is no more fear of running short of plants than last winter, or the winter before.

As there is no one living who had seen such early winter weather, and such late equinoctial gales in October, there is no telling how these may affect the coming winter. But old sailors, shepherds, and gardeners, used to make it a rule to expect a mild winter after such November weather as we had this last October. Perhaps it may be more mild after coming in so early; but mild or medium, there is no use, or anything to be derived from grumbling and vexation at what has happened, and what is lost. Put the best face on it, make the most of what is yet safe. Your loss is not so much as mine, ten to one; but I shall have more plants next spring by the same practice which I now preach, and by all the contrivances that I can think of. My mats were in the Yarmouth Roads when the frost was at the door, one half of my glass was wet in paint and putty the same day, and after covering up, for the night, I could only see the nakedness of all my resources, and ruin staring down upon my seedlings. But to vex oneself would only be to

make things worse. If I had no *Geraniums* I could lose none, and if I had not so many, my means would save them, "and what is the use of saying more about them till the frost is over?" Nothing like patience, like taking it easy, and like being thankful that, whatever it is, it is not worse than it is. When I come to count the cost, I am ten times better off than I expected; I have lost nothing of any account, only the looks of my prize plants are not quite so refreshing as they were.

All young plants from cuttings, and all the little seedlings which got frosted in the tops, I shook out of the pots, and cut them in just to the bottom of the frosted parts, and no more. I then replanted them on the colonising plan; four, or five, or six, or seven of them, according to their sizes, being put together in bundles, and planted in a frame, or in boxes, or in pots, also according to their size, and just like putting in cuttings. The largest, tallest, and strongest of the young stock were then put in a two-light box, as close as cuttings in a pan, with nothing but the cocoa fibre, or refuse. The same in the boxes, with one-half earth and one-half cocoa dust. Also the same in the pots for very small seedlings. They are all doing wonderfully well. Dry sawdust one-half, and dry half-decayed leaves rubbed through a wide sieve, with a little coarse sand and charcoal dust, or the ashes of burnt turf, or any wood ashes, would make the nearest compost like to the cocoa-nut refuse or sawdust, so to speak, and nothing is better for frosted plants.

When *Geraniums* get frosted in pots or boxes, or in frames out of pots, it is little short of madness to leave them in the same soil one hour longer than one can help. The stroke is like death to them in principle, and they ought to be so arranged as to begin life afresh, as from a seed or a cutting; then, whatever be of life within them, it is sure to come out and flourish on a sound bottom of plant, root, and soil. Then a sudden check like this overtakes a plant in a pot, box, or bed, and the consequence is a dead stagnation at the roots; but shake the soil from the roots, or lift them if they are in the ground, and put them in some light compost for a while, and immediately a set of new roots issue from all parts of the old roots, and in time these will restore the life and vigour of the plants; whereas, the leaving them to their fate in the old soil would only hasten their destruction.

My young brood are now fast forming their new white roots; the leaves stand up as if nothing had happened; and the whole disaster will only cause a lapse of a month or six weeks in their progress and vigour. Meantime they occupy much less space, and I am inclined to think that a sudden stop like this, caused artificially in October, would be the best plan to adopt with such a stock each season, every year; putting them early to rest, as it were, so as to occupy but one half of the room till the dead of winter was got over. They would be making active roots the while, to make them ready for a new start in fresh soil at the more seasonable period of the early spring.

My old plants have all been gone over in the same way—the tops cut off as far as they were frosted and no more, as I have ample store room for them, and time to look after them; but in the more common run it would have been more safe, or at least less trouble, to have had them cut down close to the hard wood, and to dry them off for two months, and then to start them afresh as I have done at first. But I shall lose the benefit of my yearly stock of half standards—a style of growing them, which is coming more into fashion every year for particular places and purposes.

The way I begin to make such standards from the beginning is this. In the spring, I plant the seedlings not more than six inches apart in the rows, and the rows are from one foot to eighteen inches asunder, according to the breeds. The soil is as rich as I can make it, and they soon come up as thick as grass, but cannot get bushy: the leading shoots having room to grow upwards

only, the press of side-shoots from the bottom fills up every inch of space; there they strive with each other, as it were, to rise higher, and so to gain more light. As soon as they begin to bloom they are looked over every day: the bad and the second and third-rate ones are pulled up, and the mass of side-shoots of the good ones is made into cuttings—not by cutting the side-shoots clean off, but by stopping them down to the second or third joint. Soon after that the spurs left on the main leader will break out again; and as soon as they are long enough there is a second crop of cuttings, and a third crop sometimes. The last crop is left till August; then every side-shoot, all the way up to the flower-stalk, is cut clean off and made into cuttings, leaving the leader quite bare up to the flower. The bare stems make the standards; and they have no power to make any more side-shoots in time to come. But see now how this plan operated against me in the frost. The tops which got frost-bitten, being the only parts which could make a fresh growth, are now as bare as fiddlesticks; and, of course, must die by inches if they are not cared for till February or March, when new heads could be put upon them by grafting.

By the way, grafting Geraniums is as easily done as grafting Apples after all, and as sure of success, but they will not graft freely upon the succulent or soft parts, or with the graft in a soft state, but get up stocks hard as fiddlesticks, and grafts like the old-fashioned cuttings—that is to say, with a joint of hard or old wood at the bottom, and there need be no fear or fuss about the grafting from February to August. Cut the stock right across and slit it down the centre, make the hard joint of the graft into a wedge shape, stick it down in the centre of the stock, and tie with anything soft—worsted is best, no clay, or moss, or anything is needed besides; but mind and cut off all the leaves from the graft, if it is grafted out of doors, like an Apple tree. In-doors, a few leaves on the top of the graft can be kept, like those on cuttings, from flagging till the union secures the necessary flow of sap, and all is right.

Then, the only secret in grafting Geraniums was to make sure of hard wood in the stock, and the like in the bottom of the graft—at least, out of doors, where alone I have done it successfully this last season. But with in-door grafting, in a stove or vinery, the grafts, perhaps, need not be so ripe as is essential in the open air—at least, I think not. Side grafting, or slit grafting, or saddle grafting, is not so sure with them as split grafting down the centre of the stock, for I gave them all a fair trial. Herbaceous grafting, as it is called, when the soft top shoot of a woody plant is to be the graft, is also best and safest with a slit down the centre of the stock.

The young wood of Rhododendrons and Azaleas, when a week or ten days old, will graft as freely as possible upon young shoots a little older than the grafts, if the tops are cut off and then split down the centre to receive a wedge-ended young succulent graft.

Now, to have a ribbon-row of most flourishing *Golden Chains*, have them grafted in February and March in the propagating-house; but, in the name of science, let us have no suckers as with the Rose-stocks. *Baron Hugel*, two years old from cuttings, made on purpose to graft without suckers, is the best Geranium that I know of for stocks to the *Golden Chain*. Six inches from the ground is high enough to graft that celebrated rival, but two inches high would do; and the reason for grafting is to get free, vigorous growth, and to be able to keep the plants in winter as easily as any other. Depend upon it, we must all take to grafting some one or other of the shy-growing kinds, and more particularly the very dwarf variegated ones, and some of the plain-leaved *Minimums*, like the green *Dandy*; and, to do so successfully, all the bottom eyes must be picked out of the cuttings when they are made for stocks, and the side-shoots that will be made in the next growth must be stopped at two or three joints from the centre shoot, to the middle or

end of August, and then to be cut clean off. The reasons for stopping them are two in number—the first, to allow the stock to lengthen up without a rival; the second, in order to have so many more leaves on the spurs to strengthen the body of the stock. But there is only one reason for cutting off all these side-shoots so early as the end of August, and that is to give a sufficient time for the wounds to heal or harden before the end of that growing season.

In a few more years the proper chapters for wintering Geraniums will embrace grafting as much as the sureties against frost, damp, and danger. I am, therefore, within the statute as clearly as if these chapters and this grafting had been regularly issued every season for the last twenty years. Some may not be aware that *Baron Hugel* will grow as large, or larger, than ever *Tom Thumb* did; but the first two plants of it we had to the Experimental were each of them five feet across, and I have seen it clear six feet from tip to tip. Yet from March or April-struck cuttings you can have a bed of it not more than six inches high the whole season. Then, if the *Golden Chain* will take on it freely, its own nature is more near to the nature of the *Golden Chain* than that of any other Geranium; therefore, it must be the best stock for it.

Age and forcing in winter, or all the winter, were the cause of the size of six feet in the big *Barons* referred to. A respectable old age, and a few successive winters of forcing, from October to May, would run up most of the dwarf variegated Geraniums into *Tom Thumb* size; and young *Baron Hugels*, from last July cuttings, if now put separately into 60-pots, and on a high shelf in the stove up near the glass, would run up so as to make good stocks by bedding-out time, or sooner, and none of the eyes need be picked out till then. Also, when the head is cut off for grafting, cut to above an eye or a side-shoot, and leave it to start or to draw up the sap more freely to the graft, and when the graft has “taken,” cut that channel from the system; but cut off all such channels lower down at the time you do the grafting, and may good luck attend the very first trial.

But about the first, or last frost, the Grapes, and the Pomological. Captain Hopkins's *Black Hamburgs* were by far the best out-of-door Grapes they had ever seen or tasted. His best bunch when gathered was a pound and three-quarters, and after thinning out fly-bitten and damaged berries, it was 1 lb. 6 ozs., and two more bunches nearly as good,—every berry of them was as good as orchard-house Grapes. But there was one small black Grape there, from some one, which everyone ought to have to scent the dessert. I knew it twenty years since, and could smell it, if it were in the same house. The scent is between the *Hautbois* Strawberry and the best Bergamot Pear. We must hunt up the transactions of the British Pomological Society for it. D. BEATON.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(Continued from page 51.)

FURTHER PARTICULARS ON THE SECOND YEAR'S CROPPING.

The Clover being the most important crop this season demands most attention; and, as we have observed, it is one of those crops which do not like to be repeated on the same land again for at least six or eight years, otherwise the success is very uncertain; and as nothing else furnishes so large an amount of nourishment when grown on stiff ground, it is by all means advisable to encourage it in every possible way. Assuming, therefore, that it has yielded three crops for cutting, or it may be two crops, and the remainder eaten off, the plants remaining still showing vigorous, I would advise in the autumn a little lime thrown over the plot: this tends to check, if not kill, that grub which so often destroys the plant in early spring. This dressing, however, must not be given

while the cow is allowed to graze over the plot, which she may do in the early autumn months. And any gaps in the Clover plant may be partially remedied by a slight forking over of the place in September, and sowing, as stated, a few seeds of *Trifolium incarnatum*. This plant, of exceedingly rapid growth, only admits of one cutting; nevertheless, it is not prudent to depend on the casual Grasses and other weeds, which a bare place brings forth, for the crop of the season. And if a portion of this Clover plot be so unpromising as to leave doubts of its doing well the ensuing season, let it be dug up at once, and planted in early spring with Potatoes, or some other crop. Or, perhaps, if twenty rods of this Clover plot were saved this way, the remaining portion with increased value of the Grass plot ought to carry the cow through the summer. If this plan were adopted, the tables for the third year would exhibit twenty rods less Clover than previously, and the tillage crops will also be much altered. And as the character of the third year's cropping depends on the preparation made for it in the autumn of the second, we will herewith give some instructions that way.

AUTUMN OF THE SECOND YEAR.

The Potatoes, Carrots, Mangold Wurtzel, and other things being removed, and the roots being stored away in a manner that will be described hereafter, the ground may have a good stirring—that is, a good digging, as soon as the crops mentioned are taken off; and, if possible, let this not be later than the beginning of October. Take care to clear away any weeds of a perennial character that may be lurking amongst the Beans, which do not admit the use of the hoe amongst them after June so well as the root crops do. This done, and it being determined to have Wheat on the plot, or it might be Barley, in either case the corn crop will act as a nurse to the Clover, which it is purposed to have the year following the corn. Wheat is the most suitable for sowing in autumn, and is often thought the best for stiff land; but if Barley is more useful as affording food for the pigs, February or March will then be soon enough to sow this; and Barley will also allow of dung being more liberally used than Wheat will do, and this is of consequence to the Clover crop succeeding it. But sow the Barley thin, and the Clover may be sown after it at the end of April, as described in the second year's cultivation. The cropping in the autumn of the second year will, therefore, be somewhat like this:—

60 rods of Grass, fast merging into a good sward.

120 rods of Clover lea, a part of which—say 20 rods or more, if bad—may be broken up during the winter for Potatoes and other green crops.

80 rods in fallow ready for sowing either with Wheat, autumn Beans, or Barley in spring, with Clover as a following crop.

In the above arrangement it will be seen that the quantity of ground in tillage the third season will be very small. This is unavoidable under the circumstances, as Clover being the most important, other things must become subordinate to it, and its cultivation carried on as long as practicable. Care must, therefore, be taken to secure as good a plant as possible, in order that it may do the work of two seasons. Do not let it be too closely eaten off in the autumn of the first year of its being cut, which we here regard as the second year of our cultivation; and if the winter prove severe, a coating of rough manure—such, for instance, as is furnished by the cavalry barracks in various towns, which, by being laid on in midwinter, the rain washes the dung or liquid substances into the ground, and the rough litter being left at top forms a sort of protection to the crown of the Clover plant during the inclement part of the year, and more especially during that part of it in which those alternate thaws and frosts exercise so destructive an influence on most plants not indigenous, of which Clover is one. This litter, or straw, in a washed state, must

be raked off with an ordinary wooden hay-rake before the Clover grows through it to entangle it; but let it lie as late as can well be done without being so entangled. In fact, if a labourer is not objectionable, let it be raked into heaps some dry day in the early part of March, and then spread over the ground again, rolling the ground at the same time if convenient. This moving of the litter tends to keep it at the top, and not to settle down into, and amongst the rising shoots of Clover, and it is too early yet to be dispensed with. Observe in this raking not to disturb anything that is not likely to fetter the scythe in the after-cutting of the crop; but all the particles of dung and solid matters may remain, and being rolled in before the ground gets too dry, a smooth surface is preserved for all after operations. This rough litter dressing is more useful to Clover than a dressing of solid material, as the latter merely enriches the ground without affording that protection to the Clover plant so much needed at this season. Liquid manure, however, may be applied as freely as circumstances will allow, more especially in spring, when the growth has commenced; and if in the autumn, not later than the end of September, some Grass seeds were sown on the most naked or broken places, they would grow and furnish herbage that might be of great service. This would be better than taking up and transplanting patches of Clover into these open places. In fact, where labour is not expensive, and it is determined to make the most that can be made of this plot, one or other of these means must be put in requisition to ensure a good, uniform crop, or cut, as it is familiarly called, all over the piece. Transplanting Clover, however, is rarely attended with success, its deep roots rendering it difficult or troublesome to get it up and into the ground again unhurt by the operation. Nevertheless, where a few plants of Lucern can be had, let them be introduced instead, or the small yellow-flowered Trefoil may be substituted. Either of these thrives better where Clover has been, than Clover does itself. We do not mean the *Trifolium* before recommended, for that is, in a great measure, an annual, and unable to endure more than one cutting with advantage.

THE TILLAGE GROUND IN THE AUTUMN AND WINTER FOLLOWING THE SECOND SEASON.

If Wheat were sown here, see that slugs do not injure it. If so, and there be many gaps of a yard square, or so, put in more seed at any time during the winter, that the ground will allow of being trod upon. Dibbling in is the best way to mend such broken places. In fact, dibbling in corn is the most economical way it can be done. Those accustomed to the work often undertake it for 5s. per acre, and there is often that saving in the seed. The plan is, however, admirably adapted for repairing faulty places. Rabbits, where they abound, are also very destructive to Wheat, especially in the winter months; but they are more easily kept down than the slug, which commits great depredation on Wheat lands which had previously been Clover lea, and if a mild autumn and winter follow the sowing. If, however, Barley be determined on, stirring the ground in midwinter, when it is sufficiently dry, will be of great service in mellowing it, and the crop will, by its after luxuriance, often repay this extra labour. Beans are more hardy, and less liable to injury from the weather, provided they are not planted too early; the end of November is early enough for them. If earlier, and a mild winter follow, they are apt to get too long, and frosts coming on in April they suffer more than they would have done if shorter, and the frost had nipped them in midwinter. Beans are not so good a nurse to Clover as a white corn crop; and this green crop being of paramount consequence, whatever else is grown must be made subservient to it.

STORING AWAY ROOTS.

The uncertainty which has of late years hung over the Potato crop, renders it advisable to store them away in

some place where they can be looked at from time to time, to see that decay does not take place. Dry out-buildings, where they can be secured from frost, will do, and at suitable times during the winter let them be looked over, and any diseased ones removed; but let the heap be at all times covered up from the light, otherwise they become green, and taste badly when cooked. Mangold Wurzel and Swede Turnips may, after being taken up and divested of their top and tip end of root, be stored away in like manner in some outhouse, if there be such a building to spare; if not, they may be arranged into a long ridge not more than five feet wide at the bottom, and piled up as high as they can be, and a slight covering of straw or litter laid on, and then a few inches of soil, taking care to leave, at places along the top of the ridge, a few tufts of rough rubbish like small, short faggots, or tufts of straw, sticking upwards a few inches above the soil. These are what the workmen call chimnies, and are to take off any steam or heat that may generate in the heap. Beat the earth firmly on the ridge, so that the rain will run off instead of sinking into it; and if very severe weather set in, it would be advisable to give the heap an additional coating of something or other to keep out the frost. If nothing else be handy, it is better to cover it with snow than leave the naked sides exposed to the long-continued frosts we sometimes have. An extraordinarily severe winter occurring now and then, and taking a cycle of years, it may be looked for as being likely to be one in ten. But I am not a sufficient weather prophet to determine when the severe one will be. J. ROBSON.

(To be continued.)

PRINCE OF WALES HYACINTH.

THE short article of Mr. Beaton's, headed "Mauve Colour Verbena," p. 54, of your October 25th number, in which he says the most magnificent thing at our Show last spring was the *Prince of Wales* Hyacinth, the only true mauve colour, and which he has recommended all fashionable families to purchase, has brought us a profusion of orders for it, which we are reluctantly obliged to decline, in consequence of there being but ONE blooming root in this country, and that we intend to keep on purpose to show it at our Exhibition, which will take place during the week commencing the 12th of March next, to as many young ladies as may honour us with a visit, not only to select the various shades of mauve in this Hyacinth for their dresses, &c.; but also, we hope, to select such colours in Hyacinths as would be best adapted to produce effect in their respective gardens.—WM. CUTBUSH & SON, *Highgate Nurseries*.

THE SCIENCE OF GARDENING.

(Continued from page 41.)

PLANTS and their leaves, if excluded from light, become of a white or pale yellow colour, in which state they are said to be *blanched* or *etiolated*. This, as already noticed, is occasioned by their being neither able to decompose the water they imbibe, nor to inhale carbonic acid. In the dark plants can only inhale oxygen, and thus, deprived of free hydrogen and carbon, on the due assimilation of which by the leaves all vegetable colours depend, and saturated with oxygen, they of necessity become white. An excess of oxygen has uniformly a tendency to whiten vegetable matters; and, to impart that excess to them is the principle upon which all bleaching is conducted. An over-dose of oxygen causes in them a deficiency of alkaline, or an excess of acid matter, and light enables plants to decompose the acid matter, and to restore that predominancy of alkalinity on which their green colour depends. Sennebier and Davy found most carbonic acid in blanched leaves; and all green leaves contain more alkaline matter than the rest of the plant which bears them. Every cook knows that a little alkali, carbonate of soda, added to the water, improves the green hue of her boiled vegetables. That this is the cause of the phenomenon is testified by direct experiment. Blanched Celery and Endive, and the white inner leaves of the Cos Lettuce, contain about one-third more water

than the same parts when green; and if submitted to destructive distillation do not yield more than half so much carbon. Then, again, if a plant of Celery is made to vegetate in the dark, under a receiver containing atmospheric air, with the addition of not more than one-twenty-fifth part of its bulk of a mixture of carburetted hydrogen, and hydrogen such as is afforded by the distillation of coal, that plant, though it becomes paler than when grown in the daylight, still retains a verdant colour.

So effectual is the metamorphosis of plants effected by excluding them from the light, that Professor Robinson brought up from a coal mine, near Glasgow, some whitish-looking plants of which no one could detect the name or character. After exposure to the light the white leaves decayed, and were succeeded by green ones, which speedily revealed that the plants were Tansy. They had found their way into the mine in some sods from a neighbouring garden; but though they had retained life in its dark galleries, they had entirely lost their natural colour, odour, and combustibility. This is only in accordance with the gardener's yearly experience; for his blanched Sea-kale, Endive, and Lettuce are totally dissimilar in flavour and appearance to the plant left in its natural state.

Sir H. Davy excluded a Cos Lettuce from the light. In six days it was rendered very pale, and at the end of another week it was quite white: the growth of the plant was checked, and the analysis of its leaves showed that they contained more carbonic acid and water, but less hydrogen and residual carbon, than an equal weight of green leaves.

A Potato has been observed to grow up in quest of light from the bottom of a well twelve feet deep—and in a dark cellar a shoot of twenty feet in length has been met with, the extremity of which had reached and rested at an open window. In the leaves of blanched vegetables peculiar chemical compounds are formed. Thus in the blanched shoot of the Potato a poisonous substance called *solanin* is produced, which disappears again when the shoot is exposed to the light and becomes green (*Otto*.) In Asparagus, in blanched Clover (*Piria*), and other plants grown in the dark, *asparagin* is formed, and no doubt other peculiar changes take place, which are not yet understood.—(*Johnston's Lectures on Agricultural Chemistry*.)

It deserves notice, that it has been proved by the experiments of Dr. Hope and others, that light from artificial sources may be concentrated so as to enable plants to absorb oxygen and perfect those elaborations on which their green colour depends; and the light of the moon has a similar influence. A similar concentrated light will make the Pimpernel, and other flowers which close until sunrise, open their petals and rouse from their rest; a fact which gives another reason why plants in rooms frequented at night become weak and exhausted sooner than those that remain, as Nature dictates, unexcited at night.

The yellow, red, and light brown tints which render the foliage of our plants so beautiful in autumn arise from the absorption of an excess of oxygen gas. When the reduced temperature of the season deprives a leaf of the power to elaborate the sap, and, indeed, stops the circulation to it of that fluid, the absorbent powers of the organ are reversed, and, instead of carbonic acid, it inhales oxygen. The effect is speedily perceptible. Gallic acid forms, and this, modified by the various saline constituents of different leaves, changes the hue of their green colouring matter, called chlorophyll or chromule, into various tints of yellow, red, and brown. This is the general effect of acids acting upon vegetable greens, and that it is the cause of the autumnal change of colour in leaves is proved by the fact, that if a green leaf be dipped into an acid it assumes the same hue; and if some red or yellow leaves be dipped into an alkaline solution they are rendered green—the alkali evidently neutralising the acid that had wrought the unnatural change of colour.

Changes similar to those resulting from age may occur merely from accident, as from the puncture of insects, the growth of parasitic fungi, or the blighting influence of frost. First they change to yellow; then they change to red.

But some leaves present naturally a different colour on each surface. The upper surface of the leaf of the Cyclamen is green; the under surface is red; yet the red chromule, in this case, exhibits the same chemical properties as the chromule that has been changed to red as the result of age.—(*Macaire*.)

The hints and warnings which these facts suggest to the mind of every reflecting practitioner are numerous. They explain and enforce the necessity of a regular, and by no means as to quantity, indiscriminate, supply of water to plants; the importance of shading after their transplanting, yet the avoidance of unneces-

sary shading to those established; and of a free circulation of air, &c.; and the necessity of keeping the leaves as clean and as free from injury as possible. The leaves of plants must often be removed; and in some instances this is done with essential benefit; but the horticulturist should constantly keep in mind that, with every leaf that he removes, he deprives the plant of a primary organ of its existence.

Light, it has just been stated, is the cause of the green colour of plants; but it should be observed that its full power is only beneficial when directed upon their upper surface. This is evidenced by the position they always maintain. Trees whether nailed to a north or south wall, or trained as espaliers, always turn the upper surfaces of their leaves outwards to where there is most light. Plants in a hothouse uninfluenced by the direction from whence proceeds the first supply of air, or the greatest degree of heat, turn not only their leaves but their very branches towards the source of brightest light, and, if not turned almost daily, entirely lose their symmetrical form.

If the branches of a tree trained against a wall, or other support, are so moved when their leaves are completely expanded, that the under side of the foliage is the most exposed to the light, they are always found to regain their natural position in a day or two. If the experiment be often repeated on the same individual, the leaves to the last continue to revert, but become gradually weaker in the effort, partially decay, and their epidermis peels off. Succulent leaves are particularly sensitive of light, but those of pinnated, leguminous plants—as the Pea and Kidney Bean—are still more so.—J.

(To be continued.)

OXALIS BOWIEI AS A BEDDING PLANT.

NOTHING tends more to prevent our falling into habits of monotonous routine than a visit now and then to a neighbouring garden—and there are few but where something may be learned—while now and then we meet with a successful result from means the very reverse of what is generally practised. Something very common is elevated to a high position, or something not generally known is found to answer a particular purpose with better effect than what had hitherto been used that way; and, in fact, the mind becomes expanded by that interchange of ideas which a visit to a neighbouring, or, it may be, a distant garden produces, especially when assisted and enlivened, as the case I now explain was, by the friendly greetings of the manager. But in accordance with the utilizing principles of the age, friendship must give place to business. I will endeavour to describe what has, I believe, been done before in THE COTTAGE GARDENER—the cultivation of that much-neglected plant the *Oxalis Bowiei*, as practised at Yotes Court, near Tunbridge; and as the position of a place exercises much influence on the well-being of things about it, I may remark, that the flower garden (as well as the mansion), lies at the base of one of the highest ranges of hills in Kent; and as this ridge, with a considerable extent of well-grown timber, is to the north of the garden, it has abundance of shelter from that quarter. The valley in front of it being also extensive, it has every chance to be warm in summer, and, consequently, well suited for the growing of plants too tender to succeed well out of doors in every place, as, in fact, the presence of many things not generally found out of doors indicated, while those of acknowledged hardihood attained a degree of luxuriance not met with in many places. An Evergreen Oak having an enormous head, could not be much less than fifteen feet in circumference of the bole, which, however, was short; and a Silver Fir had towered up to the height of 126 feet, with a stem that almost rivals the far-famed *Wellingtonia*. Other trees were also good, but a fine Cedar of Libanon which had stood on the lawn had been killed by Ivy, which occupying its sturdy limbs for some length, the tips being cut off, gave the tree a grotesque appearance. I mention this here, as another proof of the injury Ivy does to trees, a result on which a recent correspondent in THE COTTAGE GARDENER cast a doubt.

Most gardeners have seen the *Oxalis Bowiei* under the usual culture; its deep green foliage overhanging the pot, and its stems bearing blossoms of that deep rich rose colour so difficult to obtain in anything else. The whole plant is so unmanageable to the fashionable exhibitor with his forest of sticks and strings, that it is generally neglected; and though an occasional compliment be paid to its beautiful blossoms, it has never ranked with the Achimenes and similar plants. It was, therefore, with a view to make this long-neglected garden ornament available to the

parterre, that Mr. Adderley, the intelligent gardener at Yotes Court, commenced increasing it with a view to plant it out several years ago. His practice is to take up the bulbs in November, and put them away like Tulips or other bulbs till March, when he pots them, one large, or two or three small, bulbs in a 32-pot, and places them in gentle heat; and after they have advanced some length to gradually harden them off, and to tie the first flower-stem to a stick to prevent the plant shaking at the neck. The flowers generally appear by the 20th of May; and about the 1st of June they are planted out on a bed, to which a liberal allowance of leaf mould and sand has been given. Warm sunny weather, so fatal to the Verbena, speedily sends this to flower; and it requires no further attention till November, except cutting off dead flower-stalks, or removing weeds or anything else that may be troublesome. When I saw it in the middle of October there was a fair display of flowers, although very heavy rains had fallen the preceding days. It is, however, proper to add that the situation was one exceedingly favourable for its display, the bed lying to the north-west of the mansion; consequently its flowers would show themselves to great advantage in the mornings, and, in fact, all the early part of the day. But it does not close at any time so early as the *Convolvulus* and some other flowers; and to the aspiring young gardener who wishes to introduce something fresh, the *Oxalis Bowiei* may be safely recommended as the gayest plant of the season, for Mr. Adderley, who had several beds of Verbena, Geranium, and the other popular plants used for that purpose, as well as a long ribbon-border, told me that the bed of *Oxalis* was the most admired all through the season; and as plants capable of doing duty in an ornamental way, from June to October, are those only now patronised by the flower-gardener, I cannot do better than urge on those who have not seen this fine plant in perfection, to commence its culture, and to treat it well, and give it a favourable position, in the first instance. Their efforts will, I feel assured, be rewarded.—J. ROBSON.

SALE OF HERBARIA AND BOTANICAL BOOKS.

THIS took place on the 21st of October, at Mr. Stevens' Auction Rooms, King Street, Covent Garden. The lots altogether sold for more than £600. Of the collections of plants, lot 65 was the most important, and was knocked down for £205. It is thus described in the catalogue:—

“A most extensive and valuable arranged Herbarium, containing more than 38,000 species of phænogamous plants, *i.e.* more than one half the known number of that division of the vegetable kingdom.

“Each species is, in most cases, represented by several (sometimes as many as a score or even more) well preserved specimens from various countries, and by various collectors. The plants are, generally speaking, in excellent order and preservation, they are arranged in their natural families, and are placed within (but not fastened down to) separate sheets of paper. They are strapped up in convenient-sized bundles, of which the number amounts to upwards of 430 parcels.

“Each plant is accompanied by a ticket, either manuscript, printed, or lithographed (named on the authority of the Paris Museum Herbarium), with locality, source when derived, and is often accompanied by memoranda or annotations of the original collector or former possessor.

“It may with safety be affirmed that a collection so important, so extensive, so valuable, has never before been offered for public sale in one lot. The nearest approach to this Herbarium in importance being that left by the late Mr. Fielding, of Lancaster, and which was by that gentleman's munificent liberality bequeathed to, and is now deposited in, the University of Oxford; but the present Herbarium has, in some respects, an advantage over that, it is of very considerably larger extent, which a few details of its contents will at once show, as follows:—

“Embodied in the collection will be found a perfect and complete collection of the plants of Europe, especially rich as regards number of examples in the floras of Italy, Portugal, and Spain.

“A fine collection of plants (formerly belonging to Professor Ledebour) from the Russian Empire, not European only, but from Asiatic, American, and Arctic Russia.

“Somerfeldt's plants of Sweden, &c.

“From Africa this Herbarium includes the collections of Verreaux, Despreaux, Bourgeau, Kralik, Boié, Drege, Ecklon, and Zeyher, Sieber, Kotschy, Aucher-Eloy, Boissier, &c.

“And from other parts of the world large numbers of plants,

by the following collectors, are included—Belanger, Griffith, Gaudichaud, Fortune, Siebold, Gardner, Fraser, Watson, Blanchet, Perrotet, Wallich, Webb, Boivin, Goudot, Richard, Jurgensen, Jamieson, Hartweig, Welwitzsch, Cuming, Bertero, Galeotti, Claussen, Linden, Zollinger, Vauthier, Poeppig d'Orbigny, Kegel, Sagot, Schomburgh, Lobb, Hostmann, Kappler, Drummond, Preiss, and Leprieur; in addition to which, this collection includes the valuable Herbaria left by Sprengel and by Walpers."

Of the books Bateman's "Orchidaceæ of Mexico and Guatemala," fetched £13. "Flora Danica," £15 10s. "Jacquin Selectarum Stirpium Americanum Historia," £25. Martin's "Genera et Species Palmarum," £22. "Redouté les Liliacées," £17 10s. Wight's "Icones Plantarum Indiæ Orientalis," £24. All the other books realised equally satisfactory prices.

OCTOBER MEETING OF THE ENTOMOLOGICAL SOCIETY.

THIS produced a much greater number of exhibitions of new and rare British insects than usual, showing that the "brothers of the nets" had been more than ordinarily active during the past season.

Donations to the library from the Zoological and Entomological Societies of Holland, Messrs. Curtis, Hewitson, Stainton, &c., were announced, and thanks ordered to be given to the donors.

The Baron Maximilian Chaudoir was elected a member of the Society.

Mr. Stevens exhibited a specimen of the Bath White Butterfly taken on the Kentish coast; and Mr. F. Bond a number of rare Moths from the Isle of Wight, including *Laphygma exigua*, *Heliothis armigera*, *Leucania extranea*, and *Noctua flammata*—the two last-mentioned species being new to the British list. He also exhibited a specimen of *Aspilates sacraria*, taken in Devonshire by Mr. Matthews; and *Acidalia rubricaria*, taken by Mr. Lynch in Kent.

Mr. F. Smith exhibited several of the original drawings executed for Rösel's great work on the insects of Holland; also a specimen of *Aspilates sacraria* from Banstead Downs.

Mr. Ianson exhibited a specimen of the very rare *Emus hirtus*, taken at Southend by Mr. Heyward. This species on the continent is generally taken under carrion; and Mr. F. Walker stated that he had found it in Switzerland under cowdung. Also a specimen of *Anchomenus elongatus* of Dejean, a species new to the British lists.

Mr. Stainton exhibited a specimen of *Pterophorus brachydactylus*, taken in Cumberland by Mr. Hodgkinson, being the second recorded British specimen. Also a drawing of a new species of *Lithocolletis*, a genus of minute Moths, with the cocoon of the insect received from Herr Hoffman, of Ratisbonne, who proposes for it the specific name of *L. Helianthemis*, the larva forming galleries in the leaves of *Helianthemum vulgare* on their under sides. Also a specimen of a larva which feeds in the inside of pods of Peas in Guernsey.

Dr. Allechin exhibited a new British Butterfly, *Lycæna boëtica*, taken near Brighton on the 7th of August last. Although abundant in many parts of the continent, this is the first recorded instance of its occurrence in this country.

Mr. Gorham exhibited some rare Coleoptera taken in Kent; and Mr. Trimins a number of rare and beautiful insects captured by himself in Southern Africa.

Mr. Frederick Moore exhibited the larva of the Eria Moth of Bengal (*Saturnia Ricini* of Boisduval), from which a very strong kind of silk is manufactured by the natives of India; and of the hybrid between it and the Eria Moth of China (*S. Cynthia* of Drury), reared from eggs received from M. Guérinmeneville, who has for several years past devoted his attention to the introduction of new silk-producing insects into the south of France. The larva of these hybrids had been fed upon the Castor-oil plant (*Ricinus communis*).

Dr. Knaggs exhibited a species of Forester Moth (*Ino*), apparently distinct from the other British species; and also a mass of the interesting cocoons of the little Ichneumon (*Microgaster alvearius*), found upon a twig of the Virginian Creeper.

Mr. Ianson read some extracts from letters from Henry Mann, Esq., of Mercarra in the Presidency of Madras, respecting a species of coccus which has proved very injurious to the Coffee plantations. In the preceding June the crops appeared extremely promising. In July the Mealy Bug or an allied species appeared

in such numbers ("a few millions") as to threaten the destruction of the crop. They increased in numbers till August, when the plants were treated with coal tar and pounded charcoal with good effect, as many as 17,000 trees having been rubbed over with this mixture in three days. Mr. Westwood observed that this insect was evidently distinct from the species belonging to the same family which infest the Coffee plants in the island of Ceylon, specimens of which had been sent to him by Herr Neitner.

Mr. Westwood also read a letter which he had received from Mr. J. Swann on the extraordinary tenacity of life of the larvæ of the common Gnat (*Culex pipiens*), during some chemical experiments made for testing the power of various materials for fibres for the manufacture of paper.

A paper was also read by Mr. S. Stone upon the economy of *Sitaris humeralis*, a Beetle which is parasitic in the nests of Mason Bees, and which had been found in considerable numbers in Oxfordshire.

The Secretary announced that a new part of the "Transactions" of the Society was ready for delivery to the members.

NOTES ON NEW OR RARE PLANTS.

ALMEIDIA RUBRA. *St. Hill.* Nat. ord., *Rutaceæ*. Native of Brazil.—A shrub reaching about three or four feet in height, branching somewhat irregularly and laxly. Leaves broadly lanceolate, entire, attenuated at the base, and acuminate at the apex; petioles short. Inflorescence in compound racemes, with smooth, upwardly-thickened pedicels, furnished with small deciduous bracts. Flowers sometimes solitary, but more frequently two or three together. Calyx short, divided into five acute teeth, rose-coloured. Corolla composed of four obovate, or spatulate, obtuse intense rose-coloured petals. The filaments are linear, slightly contracted downwards, downy. Anthers oblong.

A very handsome stove shrub, not very generally known in private collections. A mixture of sandy loam and peat, or leaf mould, forms an excellent compost for it. Cuttings root freely enough in the usual way for stove plants. It flowers in August and September.

BATATUS PANICULATA. *Chois.* Nat. ord., *Convolvulaceæ*. Native of the East Indies, New Holland, Africa, and America.—A strong-growing, sub-herbaceous, stove-twiner. Leaves palmate, with from five to seven lobes, which are ovate-lanceolate, and generally obtuse. Peduncles long, supporting a corymbose panicle of flowers. Sepals roundish, very concave, nearly equal. Tube of corolla contracted within the calyx, but swelling immediately beyond it; limbs broad, spreading, plaited, bright purple. Stamens five. Pistil one. Capsule four-celled.

Batatus is a handsome genus, and this is one of the finest of the species. It flowers very abundantly in the later summer months. It must have a good rest in winter, and should be cut hard back in early spring. A strong, rich soil is that which brings to its greatest perfection, and if planted out and trained up the rafters of the stove, it will grow and flower in summer to the satisfaction of all; but it must have a great supply of water, and a dose of liquid manure occasionally will be productive of excellent results. Cuttings of stout, short side-shoots root freely.—S. G. W.

PAMPAS GRASS CULTURE.

THE following is the account of the culture of what we consider a good plant of the female variety of the Pampas Grass. In the autumn of 1855 I was given a single plant in a pot, and kept it in a cold greenhouse the following winter, and planted it out in June, 1856. The situation selected for it was a fully south exposure, and sheltered from the north and east by a thick shrubbery of evergreens, and from the west by the house, distant about thirty-five yards. The shrubbery has a gentle curve, in the centre of which the plant is placed, approaching within four yards of it, and is, perhaps, too close; but nothing can be better than the effect of the dark-green foliage of the evergreens, contrasting with and throwing into high relief the rich silver spikes of the Grass. The shelter is so perfect that there has never been a single stem broken.

Under the advice of an eminent horticulturist, it was planted thus:—A circular space, four feet in diameter, was dug out to a depth of two feet and a half. At the bottom was placed six inches of old bricks and lime rubbish, over this was put a compost of decayed pasture-sod, leaf mould, and a little peat. These

formed a small mound, rising six inches above the surrounding level. On the top of this the plant was placed, still small, but having plenty of healthy roots. It grew rapidly, and in the autumn of 1857 it produced thirteen spikes; in 1858 thirty-five spikes; and this year forty.

The first year the spikes were not tall, and were weak in flowers; but the last two years they averaged four feet in height, and the bloom twenty-six inches. Each spring there is a space of eighteen inches broad, and two feet deep, dug out round the plant and filled in with Hazel loam, well-decomposed stable dung, and leaf mould. This is always sodded back so as to leave no raw surface to the soil. It frequently has a barrel of water to the roots, and three or four times during the summer and autumn it has a barrel of liquid manure.

The foliage is extremely long and strong, and of a deep green, and droops gracefully all round, forming a very suitable base for the lovely plant.

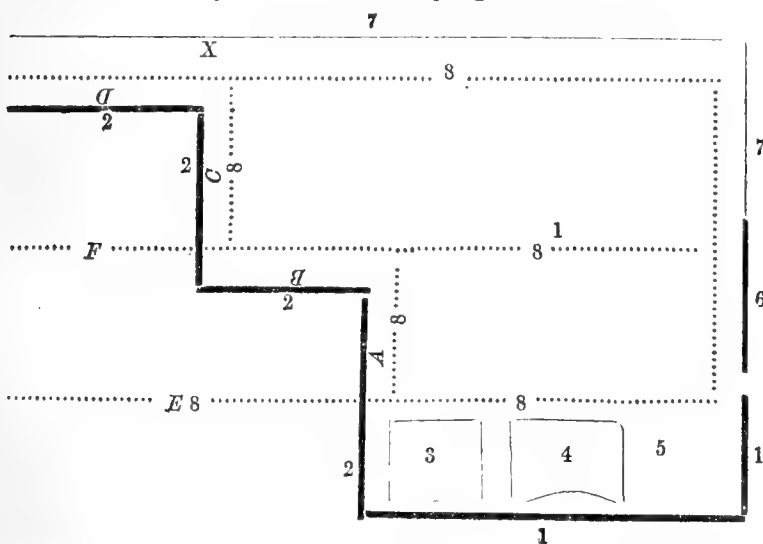
There were fourteen suckers taken off this year, with a view to propagation. Were it not for this, I have no doubt our flower-spikes would have been more numerous. We find it very difficult to get it to strike.

I have the *Phormium tenax* and *Tritoma Burchelli*, treated the same way, and find them surpassingly healthy, large, and remarkably ornamental on grass.—CARREG CATHOL, *Dublin*.

LAMPOR T HALL.

THIS substantial stone residence of Sir Charles Edmund Isham, Bart., is situated on elevated ground, in the village of Lampport, and distant less than a mile from the station of that name on the Northampton and Market Harborough Railway. The ground slopes rapidly to the station; but the small enclosed pleasure-grounds and the park immediately beyond are rather level. There is nothing in the position to make the ornamental grounds peculiarly attractive; but there are several singularities in the arrangement and management that render them worthy of attraction, and in many cases of imitation.

The accompanying diagram of straight lines, drawn from memory after a short visit, and that, unfortunately, during the absence of Mr. Burns, the indefatigable gardener, will enable our readers more easily to follow us and judge for themselves.



1, 1. Ground level of the garden front and end wing of the mansion.

2, 2, 2. Walls of kitchen garden 12 ft. in height. A from end of greenhouse being 85 ft. long; B 102 ft.; C 150 ft.; D 300 ft.

3. Handsome conservatory, 54 ft. by 42 ft., one end opaque; height of side walls, 2 ft. brick, and 9 ft. glass; roof, triple ridge, sides, 3 ft.; centre ridge 4 ft. in height. Fine healthy Camellias were at home in a bed in the centre. A broad stone path went all round, and a broad shelf around three sides was devoted to elegant flowering-plants in pots.

4. Rockwork, 84 ft. by 40 ft.; highest part 25 ft.

5. Flower garden in front of mansion.

6. Ivy-covered wall, 12 ft. high, nearly in a line with wing of mansion, and about 120 ft. long, fronted with a massive bank of Rhododendrons.

7. Grass bank, extending from Ivy-wall to X, opposite to where walls C and D meet, nearly 600 ft.; bank from 4 ft. to 5 ft. in height; slope of bank 10 ft., broad promenade on the top.

8, 8, 8. Dotted lines to represent centre of walks. Two of

these, E and F, are continued through arched doorways, or gates, into the kitchen garden, E being terminated by a summer-house, and F by a range of hothouses.

It will thus be seen, that the pleasure-grounds are bounded by the front and a wing of the mansion, an Ivy-covered wall, a raised grass-bank or terrace, and the kitchen-garden walls. Now for the distinctive features.

1. The first of these is the large and tastefully executed rockery. I had frequently heard, through friends, of the riches of this rockery, in plants, &c., and my imagination had revelled in a scene of romantic wildness, where the narrow overhanging defile, or chasmy dingle, had afforded an opportunity for the artist's skill in evoking ideas of the times when the old giants piled hill upon mountain, or just pitched from their large fists huge masses of stone from some far-off elevation, to enable us to note and compare the wondrous prowess of the past with the comparative weakness of the present. Such are some of the positions for a good artificial rockery. Judge, then, my surprise on obtaining the first view of the rockery from the conservatory, and in such nearness to an elegant mansion! Of all positions this, at first sight, seemed to be the strangest. Some would at once determine, without seeing it, that it would be as much out of place in its position as a rough basket formed of tree-roots immediately in front of a Grecian temple. Such arrangements as the latter are to be met with every day; and if the owners like them, why should we grumble because their taste may be different from our own? In front of a fine massive building, and there forming a centre to a pretty flower garden, was lately a huge hillock of roots of trees, stones, shells, &c., with plants of all kinds growing among them. In another place, and also in front of an elegant mansion, rough raised beds of roots were considered specimens of style as well as cultural skill. In a retired portion of the same grounds, roots, &c., were introduced with good effect. Notwithstanding its position, however, no such violent contrast is exhibited at Lampport. Except from the conservatory and a bed-room window or two, from no part of the house or grounds do you see much of the rockery until you get inside it. The greatest height in points, and sweeping and swelling curves, is on the top of a straight wall on the lawn side, that wall running in a line with the end of the conservatory. That wall was screened with evergreens; but there being a want of neatness about them they were removed, and white variegated Ivy plants are now growing against it and will soon cover it. Studs and wire are also placed on the wall, so as to train a few Roses, Clematis, &c., thinly, to give a light, airy appearance to the Ivy. On the end next the flower garden, a wall some five feet in height is also placed, covered with *Cotoneaster microphylla*, and inside and above that wall, there are specimens of Yew and Arbor Vitæ, thick enough to conceal the interior view. A space is left between this wall and the mansion for an entrance, and a pathway up to the conservatory. With the exception of the culminating points, which will soon be draped with variegated Ivy, nothing of this rockery is seen from the grounds.

Once inside you forget all about the position, in looking at its deep recesses, bold protrusions, mounds as if fallen from ruins, depressions as of the remains of partly filled moats, and all grouped and studded with next-to-endless varieties of rock and alpine plants. Nay, ere long, you almost instinctively begin to see some reasons why it should be where it is. The conservatory forms, as it were, a second wing to the mansion; but it is placed at the end appropriated chiefly to the domestic offices. It is not likely, therefore, that there would be any access to it from the principal rooms, except by passing along the open garden front. The flower garden would thus be a rival to it; and it may have been desirable that the beauties of the conservatory should only be seen when reached. Again, the dairy, with a wide-based, high-peaked, domed roof, supported on pillars, and extending a considerable distance from the walls, has that roof thickly thatched with reeds, for securing coolness in summer. Other modes might have been adopted, as the thatch hardly harmonises with the other roofs; but being there, and about the centre of the rockery, you feel there is a friendly neighbourliness between the two. The third and most powerful reason could only be seen if the visitor had the good fortune to meet with the kind and courteous baronet. It is the delight of some men to look through a telescope to learn more of the great and magnificent. It pleases others, by means of the microscope, to note the mechanism and the fitness for a destined purpose in the very minute. Sir Charles is evidently a great lover of the beautiful in flowers, as on the evening of our visit he was carefully collecting some, to give the

finishing touch to pretty vases in the dining and other rooms. Admiration, however, seemed to give place to enthusiasm, chiefly in the case of plants minute in size, and distinct and beautiful, and sometimes grotesque in form. Many of these are never at home unless they get a stone to cling to. Were the rockery far off, the little things might not be seen for days or weeks. Here they might be visited and noticed any time. The whole affair is not only the design of the baronet, but almost every stone, large as many of them are, was put in its place with his own hands. Many little beauties, whose names I had forgotten, many that I never knew, were, as respects their scientific and popular names, localities, properties, and whence obtained, as familiar to the owner "as household words."

A list of all the plants in that rockery would exhibit many rarities. I cannot pretend to give an outline. Variegated gold and silver Ivy in little patches, here and there, and a beautiful white variegated Bramble helped to give a little drapery to the scene. Scolopendriums were flourishing in the recesses, and rarer Ferns in suitable spots. The *Polypodium vulgare Cambricum* enlivened one corner with its numerous fresh green fronds. A pretty little *Cotoneaster* was trailing over stones, as also Thymes, and several of the rock Roses, Saxifrages, Sedums, and Sempervirens, in great variety; and among many more the following, as very suitable to such a place:—*Widdringtonia ericoides*, *Thuja dumosa*, *Librocedrus Chilensis*, *Juniperus echiniformis*, *Juniperus Hibernia pygmaea*, *Rubus arcticus*, three inches high; *Salix herbacea*, three inches high; *Salix reticulata*, *Veronica alpina*, *Polygonum vacciniifolium*, *Carduus affa*; a new and beautiful white-spotted Thistle, *Arenaria Balearica*, *Vaccinium vitis idaea*, and *Fragaria Indica*, which fruits from July to November. I may just add, that all the low beds, &c., were next the house, and that all the little paths instead of being kept neat and trim were allowed to grow wildish, just leaving enough room for the feet. Trim, straight lines would have been out of place.

2. The second singularity is the long, sloping grass bank that separates the pleasure-ground from the park. It looks well seen from a distance, and is more pleasant to the eye than an upright, perpendicular fence of any kind. Until I got on the top of the mound I thought that the soil in the park might be greatly above the soil in the pleasure-ground; but it is not so. The advantages of these banks are, forming a pleasant boundary, and making the inside and the outside of the fence quite distinct. The disadvantage is, that you lose sight, when walking in the pleasure-grounds, of the fine base of the trees in the park, which would have been obtained by means either of a ha ha, or an open iron fence. In these latter cases, the privacy now secured would have been sacrificed.

3. A third singularity is the mode of managing the kitchen-garden walls on the pleasure-ground side. This is much the same as already mentioned for the rockery wall. Variegated Ivy, chiefly the silver kind, clings closely to the walls; and outside the Ivy, by means of studs and wires, at irregular distances, and trained thinly, so as to relieve but not hurt the Ivy, are placed Tea and other Roses, Honeysuckles, Ceanothus, Clematis, &c.

4. A fourth and last distinction is securing abundance of bloom, and yet, under the circumstances, great breadth of lawn—partly by making the sides of the walks in the kitchen garden ornamental. If there is nothing singular in this so far as most places are concerned, it will ere long be singular in some others, where a bed must be daubed down in every opening. We will just now glance at the grouping and ribboning, commencing with the flower garden in front of the house. This has a fountain in the centre some fifteen feet in diameter, surmounted by an elegant shell of four feet. Round this, in a line nearly with the extremity of beds, are placed eight vases—three on each side and one at each end. There are twelve beds. Take a line across the two vases and fountain as seen from the house, and there will be two beds on each side filled with *Golden Chain*, edged with *Lobelia speciosa*; four end beds filled with *Flower of the Day*, edged with *Lobelia*; and four corner beds between the *Chain* and *Flower of the Day*, filled as follows:—1st. Heliotrope (centre), Verbena (scarlet), and edged with variegated Alyssum. 2nd. *Brilliant* Geranium, Pink Verbena, and Alyssum. 3rd. *Shrubland* Rose Petunia, Red Verbena, and Alyssum. 4th. *Trentham* Rose Geranium, Purple King Verbena, and Alyssum. Come now to the rockwork border, and in front of the wall, and we have a mass of mixed Verbenas, edged with a broad band of Portulaccas, mixed with *Gazania rigens*.

Step a little farther to the front of the greenhouse, and look along each side of the walk in front of the wall A. Next the wall

is a ribbon border thus planted in rows, beginning near the wall: 1, *Salvia patens*; 2, *Dahlia Zelinda*; 3, *Amplexicaulis* Calceolaria; 4, Scarlet Verbena; 5, *Mangles' Variegated*; 6, Pink Ivy-leaf Geranium; 7, White Variegated Alyssum, edged with blue Lobelia. We may form different opinions of the blue and purple being next each other, and perhaps it was as well that the Verbenas and Geraniums were rather mixed; but the whole border was very nice, and the two outside rows very beautiful. On the lawn side of this walk, opposite the ribbon border, is a line of beds—four circles and three oblong beds alternating with each other: the circles being six feet in diameter, and the oblongs being nine feet by six feet. A circle was the first bed opposite the end of the greenhouse; and after seeing it through the glass I had no eyes for the Camellias. As managed by Mr. Burns, it was the neatest thing I had seen for the season. The circles were raised in the centre, so as to be well rounded; two diameters were then taken across it at right angles with each other, and each about eight inches wide, leaving a part of four small quadrants. The intersecting diameters were planted with *Perilla Nankinensis*; the quadrants with *Flower of the Day*, and a nice edging of blue Lobelia all round. Two beds were thus filled:—the alternating circles had *Golden Chain* instead of *Flower of the Day*; but owing to the weather the foliage did not fill the space so well, though I should think that a month earlier the colour would have been more telling. The oblong beds were centered with *Lady Mary Fox* Geranium and *Verbena venosa*, and edged with variegated Alyssum. With the exception of this row of beds there is nothing on the lawn between the walks 8 and 8 1 except a romantic-looking Acacia tree about its centre. The other end of the lawn is bounded by a mass of Rhododendrons in front of the Ivy-wall 6.

Reaching the second walk 8 1 we find a series of ten beds, oblong in shape, placed on its farther side, so that one comes opposite the walk in front of wall A. These are mostly planted with three colours, and edged alternately with white and blue. Thus: 1st, *Lady Downe's* Geranium, *Boule de Nieve* ditto, *Brilliant* ditto, edged with blue Lobelia; 2nd, dark Calceolaria, red Verbena, white Alyssum; 3rd, *Tom Thumb* in the centre, purple Perilla round it, *Cineraria maritima* round that, and *Lobelia speciosa* as an edging. This was our favourite, though all the rest were varied as to centering, &c. But we omit these to notice that between each of these beds was a specimen of *Arbor Vitæ*; and opposite these, on the mansion-side of the walk, were specimens of Irish Yew and Junipers, except at the end next the Ivy-wall 6, where vases were substituted. These specimens and vases, distinct and separate from the beds, relieved them of tameness; and in going along the walk prevented the eye taking in too many of the beds at a time, as each was intended to be tested on its own merits. On the principle of uniformity, though it would increase Mr. Burns's cares, we would have no objection to have beds on each side of the walk, and then plant them in pairs.

From that walk 8 1, right to the grass-bank 7, there are no more beds, but the lawn is graced with fine masses of Box, some Pines, Pampas Grass, &c.

The ribbon-border along the front of wall B is thus planted, beginning near the wall:—1st, *Crimson King* Calceolaria; 2nd, White Verbena; 3rd, *Cerise Unique* Geranium; 4th, *Purple King* Verbena; 5th, *Pink Ivy-leaf* Geranium, edged with white Alyssum. This was very pretty; perhaps a dash of yellow would not have been amiss, but as it is it presents a better contrast to the border.

C. Thus planted:—1st, *Commander-in-Chief* Geranium; 2nd, Yellow Calceolaria; 3rd, Purple Perilla; 4th, *Flower of the Day* Geranium, edged with blue Lobelia.

The border in front of D is narrower than the others mentioned. A line of Hollyhocks was trained to wires against the wall. In front of them is a row of scarlet Geraniums, and then a row of Cineraria, rather thin to let each plant show itself, and an edging of blue *Lobelia speciosa*. The opposite side of the walk is a continuation in some degree of the grass bank; but, instead of grass, it is densely covered, as far as the garden wall extends, with *Cotoneaster microphylla*; and the walk extending more than a hundred yards beyond that to a summer-house, has the sides covered with *Berberis aquifolium* as under wood, and studded with specimens of Irish Yews, Deodars, and many other nice trees.

Now, to see that the kitchen-garden walks are also ornamental, and to save time, we open a doorway in the wall D, communicating with a walk that takes us back in front of the houses at the

end of *F*, and on to *E*. The sides of that cross-walk are planted with Dahlias and a mixture of herbaceous plants.

We find that walk *F* has its sides thus planted:—Back row, Scarlet Runners, then standard Roses and Sunflowers, followed by crimson Spinach and *Delphinium formosum*, then a mixed broad row of plants of dwarfer habit, and edged with variegated Mint.

The walk *E* has its two sides thus planted:—Back row, Hollyhocks, then standard Roses, then orange Calceolaria, *Mrs. Burns*; before that, and to break other lines, fine China Asters, *Geranium sanguineum*, Perilla, *Mangles' Variegated* Geranium, with a dense row of *Lobelia speciosa* in front.

I have entered upon these minutiae, chiefly that it may be seen that great floral variety may be obtained in little space, and that without cutting up the little pet green lawn. I have just left room to say, that the houses at the end of *F* were cleared; that the kitchen garden, like the pleasure-ground, was clean and well cropped; that a new orchard looked well; that in the pits and houses near the conservatory were good Melons and fine *Hampden* and *West St. Peter* Grapes as black as they could be, and fine supplies of *Gesnera zebrina*, Chinese Primroses, Cinerarias, Azaleas, &c., for winter and spring blooming, and myriads of struck and striking cuttings for next year.

Two suggestions may be worth the attention of more gardeners than myself. First, Mr. Burns had gone to the Crystal Palace September Show, and to look about him for several days; but it did not require half an eye to see that he had everything in first-rate order before he left. The second is, this holiday was taken when his employer and the establishment were at home. What a commentary to the credit and honour of all concerned! There may be reasons why some gardeners, like Sterne's starling, never can get out.

R. FISH.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 72.)

PEARS.

Fanfareau. See *Hampden's Bergamot*.

FIGUE D'ALENÇON (*Bonissime de la Sarthe; Figue d'Hiver*).—Fruit medium sized, pyriform. Skin greenish-yellow, strewed with russety dots. Eye small, set in a shallow basin. Stalk half an inch long, inserted obliquely, without depression. Flesh greenish, melting, juicy, sweet, and vinous. Ripe in November and December.

Figue d'Hiver. See *Figue d'Alençon*.

Figue Musquée. See *Windsor*.

FIGUE DE NAPLES (*Comtesse de Frénol; Vigne de Pelone*).—Fruit above medium size, oblong. Skin greenish-yellow, entirely covered with thin, delicate russet, and dark reddish-brown on the side next the sun. Eye open, set in a wide, shallow basin. Stalk three quarters of an inch long, inserted without depression. Flesh greenish-white, buttery and melting, with a rich sugary flavour.

An excellent pear, ripe in November.

Fingal's. See *Hampden's Bergamot*.

Fin Or d'Eté. See *Summer Franc Real*.

Fin Or d'Hiver. See *Winter Franc Real*.

FLEMISH BEAUTY (*Belle de Flandre; Beurré des Bois; Beurré de Bourgogne; Beurré Davy; Beurré Davis; Beurré d'Elberg; Beurré Foidard; Beurré St. Amour; Beurré Spence; Boss Père; Bosc Sire; Bouche Nouvelle; Brilliant; Fondante des Bois; Gagnée à Heuze; Impératrice des Bois*).—Fruit large and obovate. Skin pale yellow, almost entirely covered with yellowish-brown russet on the shaded side, and reddish-brown on the side next the sun. Eye open, set in a small, shallow basin. Stalk an inch long, inserted in a rather deep cavity. Flesh yellowish-white, buttery and melting, rich and sugary. Ripe in September.

To have this excellent pear in perfection it should be gathered before it is thoroughly ripe, otherwise it is very inferior in quality.

FLEMISH BON CHRÉTIEN (*Bon Chrétien Nouvelle; Bon Chrétien Turc; Bon Chrétien de Vernois*).—Fruit medium

sized, obovate. Skin yellow, thickly strewed with russety dots, which are thickest on the side next the sun. Eye open, set in a small and shallow basin. Stalk an inch and a half long, inserted by the side of a fleshy swelling. Flesh yellowish-white, crisp, sweet, and perfumed.

An excellent stewing pear, in use from November till March.

Florence d'Eté. See *Summer Bon Chrétien*.

FONDANTE D'AUTOMNE (*Arbre Superbe; Belle Lucrative; Bergamotte Fiévé; Beurré d'Albret; Beurré Lucratif; Excellentissime; Gresilière; Lucrate; Seigneur; Seigneur d'Esperen*).—Fruit large, obovate, and handsomely shaped. Skin lemon-yellow, with tinges of green over the surface, marked with patches of yellowish-brown russet. Eye small and open, set in a shallow basin. Stalk long, fleshy at the base, and obliquely inserted without depression. Flesh white, very tender, fine-grained and melting, very juicy, sugary, and aromatic.

A delicious autumn pear, ripe during September and October.

Fondante des Bois. See *Flemish Beauty*.

FONDANTE DES CHARNEUX (*Belle Excellente; Beurré des Charneuses; Desirée Van Mons; Duc de Brabant; Miel de Waterloo*).—Fruit large, pyriform, uneven in its outline. Skin greenish-yellow, with a faint tinge of red on the side next the sun, and thickly strewed with russet dots. Eye large and open, set in a shallow, uneven basin. Stalk upwards of an inch long, curved and inserted without depression by the side of a fleshy lip. Flesh tender, buttery, and melting, sugary, and richly flavoured. Ripe in November.

Fondante de Jaffard. See *Colmar d'Aremberg*.

Fondante de Malines. See *Winter Nelis*.

Fondante de Mons. See *Passe Colmar*.

Fondante Musquée. See *Summer Thorn*.

FONDANTE DE NOËL (*Belle après Noël; Belle de Noël; Bonne de Noël*).—Fruit medium sized, turbinate. Skin yellow next the sun, covered with traces of russet and numerous russet dots, sometimes tinged with red on the side. Eye closed, set in a broad, shallow basin. Stalk long, obliquely inserted by the side of a fleshy lip. Flesh melting, juicy, sweet, and well flavoured. December and January.

Fondante de Parisel. See *Passe Colmar*.

FONDANTE VAN MONS.—Fruit medium sized, roundish, and somewhat depressed. Skin thin and delicate, of a fine waxen-yellow colour, mottled with very thin cinnamon-coloured russet. Eye open, set in a very shallow depression. Stalk an inch long, set in a narrow and rather deep cavity. Flesh white, juicy, melting, and sugary, with a slightly perfumed flavour. September and October.

An excellent dessert pear, but not so rich as Fondante d'Automne, which is ripe at the same time.

FORELLE (*Trout; Truit*).—Fruit medium sized, oblong-obovate, but sometimes assuming a pyriform shape. Skin smooth and shining, of a fine lemon-yellow colour on the shaded side, and bright crimson on the side next the sun, covered with numerous crimson spots, which from their resemblance to the markings on a trout have suggested the name. Eye small, set in a rather shallow basin. Stalk an inch long, slender, inserted in a small shallow cavity. Flesh white, delicate, buttery, and melting, with a rich sugary and vinous flavour.

An excellent pear, in use from November till February. The tree is hardy, and a good bearer.

FORTUNÉE (*Bergamotte Fortunée; Fortunée Parmen-tier*).—Fruit below medium size, roundish-turbinate, uneven in its outline. Skin deep yellow, covered all over with flakes and lines of brown russet. Eye closed, deeply sunk. Stalk three quarters of an inch long, stout. Flesh half-melting, juicy, and sweet.

A stewing pear, in use from January till May.

Franc Real d'Été. See *Summer Franc Real*.
 Franc Real Gros. See *Angélique de Bordeaux*.
 Franc Real d'Hiver. See *Winter Franc Real*.

FREDERIC LE CLERC.—Fruit above medium size, short, pyriform. Skin green at first, but changing as it ripens to yellow; slightly mottled with russet. Eye open, set in a shallow basin. Stalk an inch long, woody. Flesh yellowish, buttery, melting, and very juicy, sugary, and rich. Ripe in November.

(To be continued.)

SALTRAM.

THIS beautiful seat of the Earl of Morley is snugly embosomed amongst noble trees, with which the park and adjacent country are judiciously studded. The western front faces Plymouth and its celebrated harbour, but sufficiently removed to ensure that privacy so much prized in a country residence. The south front forms the principal entrance; the offices being attached to the north or north-eastern corner. Altogether, the mansion has a prepossessing appearance outwardly; and the inside consists of a beautiful suite of rooms richly ornamented with pictures and other costly objects, which, like most similar collections, have taken several generations to acquire. But my purpose is not to dilate on these matters, but to notice some features in the garden worthy of imitation—more especially the kitchen garden, which is one of the best I ever saw; and, under the care of Mr. Snow, the excellent gardener, is well managed, and very productive.

This kitchen garden, like most others, is bounded by good high walls: against which the more tender fruits are grown to great perfection. A range of glass-houses on the centre of the north wall was also in good order, Grapes and other fruits being abundant and fine; but the principal feature which interested me was the mode of growing the smaller or common vegetables in the kitchen garden on high, broad ridges thrown up in lines running east and west, so as to give a considerable space of "north slope" to each. This plan, which was detailed in these pages by our worthy friend Mr. Fish last year, is worthy of more general imitation. As Mr. Snow told me, without these slopes he could never have had Lettuce, Cauliflower, and other things the past dry season; but that, by their being planted on these ridges, they had a much greater depth of good mould to grow in, which on the north side was not so subjected to those punishing periods of dry weather from which so many parts of England have the past season been suffering. On the south side of one of those slopes I noticed a fine bank of Violets, giving promise of innumerable bunches of these universal favourites in the early spring, or probably, with a little shelter, in winter itself. The bulk of the Strawberries was grown on the level ground. At the time I was there (the middle of August) Mr. Snow was planting out a quantity that had been layered in pots.

It is somewhat remarkable that this, the western part of Devon and the adjoining county of Cornwall, had suffered more the past season from the want of rain than the oldest inhabitant can remember. This is the more singular, as there appears to have been no lack of rain in the midland counties; while in Kent, and I believe mostly all along the eastern coast, the drought has been felt very severely. The garden at Saltram, inclining to the north, rendered it, perhaps, less influenced by continued sunshine than if it faced the other way; and it also gave a longer slope to the north side of those banks than could have been given on a level, or where the descent was in the contrary direction. It is hardly necessary to say that Apples and other fruit trees were in a thriving state: this most of our readers will expect to be always the case in Devonshire, so famed for cider and other good things; but the trees at Saltram had also a fair crop of fruit on, which we all know is far from general this year; and by the slight glances I could obtain of the orchards in that county, while travelling by railway, I should say that Apples were far from being plentiful, although more abundant than in most other places.

On the western side of the mansion, a geometric flower garden had been formed,—the beds being on grass. They were late, because the long-continued dry weather had checked, and, I was told, had almost annihilated them. They had shortly before had rain, and were fast recovering and getting nicely into bloom. It was painful to see here that the *Calceolaria* was failing in its usefulness, for plants were dying

off from the same inexplicable cause complained of elsewhere, more especially the dark kinds. The yellows seem to stand better. Mr. Snow showed me a bed of *Aurea floribunda* doing very well, the plant differing much in habit from the one I have under that name. Another one in the way of *C. Kayii*, but much better, was also promising well; and Verbenas and Geraniums promised to speedily become all that could be desired.

A little way from this flower garden was a neat rosery, in the neighbourhood of which were some fine plants of Pampas Grass. A large space of gravel was also set apart for the summer standing of some very fine Orange trees, which seem a general feature in Devonshire gardening. Large trees in tubs or boxes are sheltered in winter in some place, generally with a dark roof, and being brought out in May, form handsome objects during the summer; and here there were some fine specimens.

Altogether the place is very interesting; the foreground as has been described, looks over the fine harbour of Plymouth with its numerous armlets (one of which runs up nearly to this place). The Cornish hills terminate the view in that direction; not the least interesting object that way being "Mount Edgecumbe," the magnificent seat of the noble Earl of that name, and which I should have been saying a few words upon, but Mr. Fish has so ably described it in a former article; while, to the north of the mansion, the bleak high ground of Dartmoor frowns with a sort of forbidding sterility on the smiling scene below. The South Devon rail passes within a mile or so of Saltram. The Plympton station is the most contiguous to it.

I cannot close this article without noticing an excellent expedient for preventing weeds becoming troublesome on walks or pavements. It was by scattering a little sandy substance over them, which the mines in this country furnish, I believe, abundantly. I forget the local name it has, but that is of little consequence; neither would the long scientific name the geologist would give it convey much information to the general mass of ordinary readers. Suffice it to say, that it appeared like a greenish-grey sand; and though chemists, no doubt, would deduce many component parts from it, I should say the agent which was so fatal to vegetation was copperas. But so plentifully was this, or some other poison, blended with it, that Mr. Snow told me a very small quantity was sufficient to keep down vegetation anywhere; and that by using it with discretion, the edgings and other things took no harm. A useful mineral poison, cheap and efficacious for the destruction of weeds, has long been wanted. I only wish this was more widely diffused. I have no doubt but it would be extensively used; but existing only in the vicinity of mining districts, I fear its use must of necessity be restricted.—J. ROBSON.

PAMPAS GRASS.

WE have a Pampas Grass here, grown on a light garden soil, with a hard clay subsoil. It measures in height nine feet to the top of the tallest spike. Seventy-two spikes in all. Measures nineteen feet in circumference. Planted two years back in a small 60-pot. Never was watered or protected in any way further than tying up the Grass to keep it out of the way of a path that runs close to it. It is of the grey variety.—S. DILLIS-TONE, *Nurseries, Sturmer*.

CULTURE OF HOLCUS SACCHARATUS.

HAVING seen a letter in your Journal of the 26th July last, from one of your correspondents, a Mr. George Yule, regarding the *Holcus saccharatus*, I am induced to send you my experience of a small crop I grew this year.

On the 20th of June last I sowed in drills about the eighth of an acre of seed, obtained from Wheeler's, of Gloucester, and on the 15th of August the main stems had attained a growth of from three to four feet, with broad pendant leaves. These stems I freely cut; and since that time until the present frost I have been cutting from the crop constantly, and consider it a very profitable one.

I apprehend this grass should not be treated as a soiling crop, by being either eaten or mown off, but should be constantly thinned out; and this I found succeed remarkably well, as the roots branched out freely when the main stems were removed.

I am so satisfied with the amount of nutriment it affords for

cattle, that I purpose next year sowing a much larger piece, and putting the seeds in two months earlier, as the second sprouts would have produced a much heavier crop if the first had been up and cut earlier. I purpose then sending you more accurate particulars as to weight, height, &c., as the space will allow of a fairer average being taken.

I should strongly advise the seed being drilled in, as it will ensure a heavier crop and be cut much easier.—GEO. GOWER WOODWARD.

TO CORRESPONDENTS.

CROSSING TULIPS (J. V.).—Next April will be the right time to answer your question about crossing Tulips when they are coming into bloom. In one sense, that of fertilising, every flower must be crossed before it will seed. The male or female parts of a flower, or different flowers, must come in contact.

PLANTING VINES AND PEACHES FOR FORCING (Z. A. B.).—For early forcing, we quite approve of the trees being planted inside, whether Vines or Peaches. Drainage, however, must be well attended to. We do not see the propriety or use of your three-foot-deep pigeon-holed wall either at the front or the back of your house. The Vine-stems would be all right if they were eighteen inches or less from the pipes, without a wall to separate them. At the back it seems still more unnecessary, as the centre of the house is all prepared soils. There are two ideas that these longitudinal walls suggest. First, the pipes may either be below or above the ground level of your border; and by openings in the wall at your disposal the space over the pipes may be made into a bed for growing and striking plants requiring bottom heat. The second idea is peculiarly applicable to early forcing. Supposing that the pipes were as low, or nearly so, as the bottom of the border, that that bottom was either hollow all through, being chambered, or open drains every three feet or so went across it, one end terminating in the chamber where the pipes were, and the other in a cavity—say, a foot wide all along the back. Then, as soon as the pipes were heated, the air above them would expand and rise to the top of the house, sucking cold air out of the drains to supply its place, so that the heated air would, ere long, get to the cavity at the back, pass through the drains, and over the pipes again; and thus the circulation of the air in the house would become perfect, and the soil in which the roots grew would be gently heated. If pipes are used for such cross drains, they must be watertight and root-proof. As to watering, that must depend entirely on the season, and on the fact that no liquid gets to the roots except what you give. This is a great advantage in early forcing, as you can use heated water.

FROSTED GERANIUMS (M. L. W.).—It is best to have a young stock, and, therefore, not dependent altogether, or greatly, on old plants. People do not like to destroy the appearance of fine beds. Our own were very fine on the forenoon of the 21st of October, and we had disturbed the outline of the bed scarcely any; but in the afternoon the signs of a cold night were unmistakable, and a number of favourite plants were hastily removed under sheds, &c., and thus escaped all injury. The whole of the fine plants left would not, in general, be half so good as young cuttings; but if these were not taken off, the only thing to do now with old plants of Geraniums would be to cut them down closely to the collar, and pack the roots in sandy loam, leaving just the tops exposed. These cut parts should be daubed with quicklime and charcoal. If our correspondent's are not worse than ours, the most of them will make fair plants next season, but not so good as young ones. It is advisable to have a few old old plants, to make centres where the pyramidal style is at all adopted. When the beds are level, nothing answers better than young plants struck in August and September. You will have seen what Mr. Beaton says to-day and in previous numbers on the same subject. Something will be said next week about the management of fires.

CONSTRUCTION OF A GREENHOUSE (H. B.).—We have nothing to find fault with in your anticipated arrangements; but having taken your flue twenty feet, we would urge you to move your chimney, and take it along the other twenty feet. The latter part will be much the cooler, and for hardening purposes you can give plenty of air. If your present flue returns, however, you will not do it so easily, and you may let it remain as it is. You may have dwarf Peach trees, or Figs in pots, in the department set apart to Peach trees on the back; but you can use it for nothing during winter that will not stand a little frost; and, we suspect, after the middle of March, or, at farthest, the end of it, you will have it full with bedding plants. When theinery part is thinned, you might introduce some Strawberry plants, or a few Kidney Bean pots, to precede by a month or two those in the open air. If we knew what you were most attached to, we might say more, or what uses you could turn such a house to.

WILD FLOWERS (A Reader).—We know of no work upon their culture. If you send us a stamped letter for the Ross gentleman, we will endeavour to send it to him.

CUCUMBER PLANTS (W. C.).—The leaves turning brown at the edges is evidence that there is a deficiency of sap supplied to them. If the roots are healthy, give some tepid weak liquid manure.

SCALE AND THRIPS (A Novice).—Dipping the plants into water heated to 140°, will destroy the scale without injuring the plants. Keep them under water two or three minutes. Then paint them over with a creamy mixture of clay, water, flowers of sulphur, and size, in the proportion of forty pints of water, 2 lbs. flowers of sulphur, and 1 lb. size. The thrips may be destroyed by dusting the plants with a mixture of equal parts Scotch snuff and flowers of sulphur. More free admission of air, and more moisture in the air, would keep away both scale and thrips.

GARDENING BOOK (A. M. G.).—Buy "The Gardener's Manual," published at our office.

FLOWERING SHRUBS FOR A SMALL GARDEN (Nottingham).—1 *Laurustinus*; 2 *Rhododendrons*, hardy varieties; 1 *Berberis Darwinii*; 1 *Cotoneaster microphylla*; 1 *Berberis Beallii*; 1 *Sedum angustifolium*; 1 *Mahonia Fortunei*; 1 *Erica carnea*; 1 *Ceanothus rigidus*; 1 *Andromeda floribunda*; 1 *Kalmia latifolia*; 1 *Daphne cneorum*. These are evergreen, and will grow in sandy soil, free from chalk. The Sedums, Andromeda, Kalmia, and Rhododendrons would not find fault with a little peat.

COTTAGE ARCHITECTURE (An Amateur).—There is a very good little volume, entitled "Rural Architecture," in "Richardson's Rural Handbooks,"

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

NOVEMBER 18th and 19th. WEST OF SCOTLAND ORNITHOLOGICAL ASSOCIATION (Pigeons and Canary Birds). Sec., Mr. T. Buchanan, 74, Argyle Street, Glasgow. Entries close the 7th of November.

NOVEMBER 19th to 23rd. CRYSTAL PALACE. (Canaries and British and Foreign Cage Birds). Sec., Mr. W. Houghton.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. Sec., Mr. J. Morgan, Bingley Hall, Birmingham.

DECEMBER 28th and 29th. SHEFFIELD AND HALLAMSHIRE (Fancy Pigeons). Sec., Mr. Inman New, Sheffield. Entries close December 12th.

DECEMBER 28th and 29th. POULTON-LE-FYLDE. Sec., Mr. J. S. Butler.

JANUARY 7th, 1860. BRADFORD. (Single Cock Show.) Secs., Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackbrough, Black Bull Inn, Iye Gate, Bradford.

JANUARY 31st and FEBRUARY 1st and 2nd. CHESTERFIELD AND SCARSDALE. Hon. Secs., Mr. J. Charlesworth, and Mr. T. P. Wood, jun.

FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). Sec., Mr. W. Houghton. Entries close Jan. 14th.

MANUFACTURED BREEDS—SEBRIGHT BANTAMS.

OUR columns have proved of late that difference has existed in the opinion of poultry breeders as to the points of excellence that may be attained, or the degree of merit that is possible. While some consider all breeds pure, others think, with rare exceptions, all are manufactured. The question is something akin to a tangled ball of string, and the end is difficult to find. We will leave all abstruse and scientific points for the labour of those who delight in difficulties, and who can give the time necessary for the pursuit.

We know only one fabricated fowl, and that is the Sebright Bantam. Its production was the work of years and a love of the pursuit, joined to a knowledge of breeds which has seldom fallen to the lot of one amateur. Sir John Sebright was an amateur and connoisseur in poultry when both were scarce. Our knowledge is practical, and our experiments are those which are daily carried out by ourselves. Our conviction is that any manufactured breed wears itself out, unless the original component parts are regularly supplied to maintain its excellence. Thus this Bantam, bred for a few years from the same stock without introduction of fresh blood, loses the double comb, the hen-tail, and the lacing. This latter disappears first; the colours become run and patchy; and common birds of every breed are the descendants of the beautiful Sebright Bantam. But in every other breed, although the points may be less developed—though some beauties or peculiarities may be more faintly represented—still the breed remains unquestionable. If a good judge sees fowls in this state, he can at once point out what is wanted, and supply it. He will do away with long legs, faulty combs, or offending plumage, by using specimens of the same breed, but possessing that which the others lack. If this is true in remedying defects, it is not less so in perpetuating beauties. However good a yard of fowls may be, the perfect birds will be the exceptions; a practised eye will at once choose these, and breeding from them will succeed in making them almost the rule. It will require time and painstaking, and a retrograde movement at times. Even an indifferent bird will sometimes have one merit so well developed that it is advisable to use him for one season, for the sake of it, and the faults transmitted with the virtue must be afterwards got rid of. We offer these suggestions to those who are disposed to try for perfection, and we say that any reasonable point in poultry is attainable.—B.

GLASGOW EXHIBITION OF FANCY PIGEONS AND CANARY BIRDS.

THE first annual exhibition of the West of Scotland Ornithological Association for fancy Pigeons and Canaries is to be held in the Trades' Hall, Glassford Street, Glasgow, on Friday and Saturday, the 18th and 19th of November, 1859. The classes are:—for Powder Pigeons, five for cocks and five for hens—two prizes each of £1 and 10s. For Carriers, two classes for cocks and two for hens—two prizes each of £1 and 10s. For Short-faced Tumblers, a pair of Almonds, two prizes of £1 and 10s. And for any other colour or marking, two prizes of 15s. and 7s. 6d. The other varieties are classes for Fantails, Jacobins, Trumpeters, Barbs, Turbits, Owls, and any other distinct breeds or varieties. Two prizes each of 15s. and 7s. 6d. respectively.

The extra prizes for Pigeons are:—A silver cup or piece of

plate, value £5 5s., for the best three pens of Carriers, Powters, and Almond Tumblers, to be exhibited especially for this prize. A handsome silver medal for the best two pens of Dragoons and Black Fantails; and Mr. Eaton's treatise on Pigeons as a first prize, and six portraits of Pigeons as a second prize, for the exhibitor of the greatest number of varieties. The entrance fee in all the Pigeon classes is 3s. per pen; and we hear a professional judge from London has been engaged.

The classes for Canaries are restricted to Scotch and Belgian Fancy. For the Scotch Fancy Canaries, there are four prizes each of £1 10s.; £1; 10s.; and prize-card for Yellow cock, Buff cock, Yellow hen, and Buff hen. Entrance fee 1s. 6d. each bird. For Piebald Scotch Fancy, three prizes each of 15s., 7s. 6d., and prize-card, to Yellow Piebald cock, Buff Piebald cock, Yellow hen, and Buff hen. Entrance fee 9d. each bird. For Belgian Canaries, three prizes each, to Yellow cock, Buff cock, Yellow hen, Buff hen, of the respective worth of £1, 10s., and a prize-card. Entrance fee 1s. 6d. each bird. Goldfinch Mules, two prizes of 10s. and 5s. each; to Yellow Goldfinch Mule cock and Buff ditto, 10s. and 5s. each. Entrance fee 9d. each bird. There is also a class for fowl-feathered birds, either Scotch or Belgian Canaries, at an entrance fee of 1s. each. But although the Show purports to be open to the United Kingdom, there is no variety class where English fanciers could show their birds, except Belgians. Extra prize for Canaries. A handsome silver-plated teapot, value £2 2s., for the best pair of Scotch Fancy Canaries, one Yellow, the other Buff. To be exhibited especially for this prize. Entrance money 3s. each pair.

THE INDIAN GAME FOWLS.

THE Indian Game Fowl, though shown at Birmingham, Sydenham, and other places last season, taking prizes and commendations, has not, I think, been noticed in your columns. I, therefore, now beg to offer a few remarks, which I trust may call the attention of both the naturalist and amateur to one of the most unique breeds of our domestic poultry. Their peculiarities consist in the tail being set on in an horizontal position, in a similar manner to that of the Pheasant, so that the saddle hackles fall over and mix with it; this fowl being the only one I know that is unable to elevate his tail. The feathers on the head have all the appearance of being brushed up, so as to meet at the crown. The comb is something similar to the pea of the Brahmas, but more elevated behind. In colour, the cock is a mixture of green, black, and dark red. The hen is rather of a browner tint, and both have a strong metallic lustre. Being exhibited under "any other breed," they, unfortunately, usually occupy a pen where their peculiarly brilliant colour is not to be seen. But even in such a position, a few minutes will not be thrown away in an inspection of this link between our yard fowl and the Pheasant, to which bird, I may add, it bears a very strong resemblance when at liberty.—J. LLOYD.

CROSS BETWEEN THE PHEASANT AND BANTAM.

WILL a hen Pheasant breed with a Bantam cock? or a cock Pheasant with a Bantam hen? Which is the better cross? What are the characteristics of the chickens, and where may they be had, and the probable price?—G. J. L.

[The usual cross, and therefore the most successful, is between the cock Pheasant and a Bantam hen. To accomplish this the Pheasant must be a tame-bred bird; and to reduce it almost to a certainty, a Bantam hen should be allowed to hatch a mixed brood of Pheasants and Bantams. The produce is a hybrid. They are not uncommon, but they are always bred from large fowls. We do not know where any are now to be had. The appearance of them is curious; they always have long tails; they never have combs or gills, nor red faces. There is difference enough in size to have sexes attributed to them, but they are sterile—at least, such is our experience. It is, however, said the female (!) will breed again if put to a perfect male. We believe it has never been done. We have had a dozen of them at a time, and those we called males had most earnest longings to sit; they would watch the laying hens, and fly on the nest the moment the hen had laid. There is in our mind no greater proof that no real sex exists, as the same desire belongs to capons. The Pheasant and Bantam hen should be always kept together, and the former should never see a hen of his own breed.]

PRIZE LIST OF THE WILTSHIRE POULTRY SHOW—PLUMAGE OF SPANGLED POLANDS.

THANKS to "W. W." for his lines, and may they meet the eyes and touch the feelings of the authorities of the Wilts Agricultural Society, and other Shows. To the Wilts Society I wrote last year, as soon as I received the schedule, urging a change. The reply was, "Too late." I have again written this year, but received no reply.

I gather from "W. W.'s" ending remarks, that Hamburgs should have four classes. Granted, in large Shows, but you cannot expect it in provincial meetings; and I imagine it is far better to have two classes, one for Pencilled, the other for Spangled, irrespective of colour, than to pit Pencilled against Spangled.

Does the topknot of Silver Polands become white with age? and under these circumstances are they disqualified from prize-taking?

Is the cock's tail ever pure white laced? or is there greater difficulty in attaining the silver tail shown in the Hamburg? I fancy so.—J. H.

[The Committees who have to manage Poultry Shows are obliged to be guided by past entries. Having two classes, they are able to offer two, or sometimes three prizes in each. If they had four, they could probably offer but one small prize in each. Your suggestion is correct; it is better to put Spangled and Pencilled in separate classes. No Judge can decide satisfactorily where two breeds are classed together. He cannot even please himself. Suppose in a small Show there were four classes, with prizes of £2 and £1 each. The prize money would amount to £12. The entries probably twenty, at 5s. per pen. Clear loss to the Committee, £7. Exhibitors and Committee should pull together; and the former should recollect all the pecuniary responsibility rests on the latter.

The topknots of Golden and Silver Polands become whiter with age, but the birds are not disqualified thereby.

The tail of a Silver Poland cock should not be *laced*—that would be a great fault; it should be tipped. It is more difficult to get this in Poland than Hamburgs; but it is nevertheless sometimes attained, and is becoming every day more common.]

ROOSTING-PLACES—KEEPING THE SEXES APART.

IN breeding Dorkings for the table this winter, I propose keeping the parent birds in an enclosed yard, away from the rest of my fowls, and giving them as a roosting-place an empty room, easily accessible by stairs from the yard, where they will be very snug. You seem to advocate in your paper a roosting-place open to the air on one side. What are the relative advantages of the two plans? and would you advise me rather to build a rough shed for them? I should say that my house is in a remarkably cold place, standing high on chalk downs.

May I also ask for a few remarks on keeping the male and female birds separate when not breeding from them, and how far you think it worth taking trouble to provide separate runs?—C. R.

[We have never advocated a room as a roosting-place. Stone, brick, or wooden floors are all bad—nothing can be worse. At this season, and during the winter, it is by no means necessary to have one side of the house open. It is injurious rather than otherwise, especially in a cold place. If you have no roost for them, make one in a sheltered corner. It may be made of boards, and moveable by two men, on poles, like the old sedan chair, or it may be made of rods, with heath, straw, or furze worked in between them, so as to exclude *all* draught. We prefer boarded houses, as they are always useful, and they are inexpensive. One large enough for eight fowls will cost from 35s. to 45s. They require no bottom, and should be six feet square, with a small door in one corner of the front. The perches should be twenty-four inches from the ground, and placed away from the door, running from front to back. The ground should be covered with dust four inches deep. The roof should be six feet high in the middle.

There is little to be gained by keeping birds separate, unless it is wished to change the males. In that case the hens should be alone for two months before the fresh cock is put with them, if it is in the spring; but it matters less at this season of the year, as the cocks are not so attentive to the hens in the winter. It is bad to have too many cocks with the hens, and, therefore, it is well to have a run that can be given up to them.]

THE CANARY AND THE BRITISH FINCHES.

THE small birds, which are usually kept in aviaries and cages, and feed on seeds, are placed by naturalists in the second order—Insectivores, or Perchers; and belong to the second tribe—Coni-rostræ, or Conical-billed birds, and to the family Fringillidæ.

The English seed-eating birds, to which I shall now allude, belong to the three following groups:—*Loxia*, or Grosbeak; *Fringilla*, or Finches; and *Emberiza*, or Buntings.

To take them, therefore, in order, I shall commence with the Grosbeaks in the following classification:—

1st. GROSBEAKS (*Loxia*).—The Crossbill, the Hawfinch, the Greenfinch, the Bullfinch, and the Serin.

2nd. THE FINCHES (*Fringilla*) comprise the Cibrilfinch, the wild Canary; the domestic Canary, and its various breeds as follow:—The Green, the Cinnamon, Jonque Norwich, the Lizards, the London Fancy, Crested Canaries, Regular Pieds, Erect Belgians, Hooped Belgians, German Canaries, and Rough-footed; also Canary Mules. The Linnet; the Twite; the Red-pole and Mealy Redpole; the Siskin, or Aberdevine; the Goldfinch; the Chaffinch; the Bramblefinch; the Sparrow and the Mountain Sparrow.

3rd. BUNTINGS (*Emberiza*).—The Common Bunting, the Yellowhammer, the Reed Sparrow, the Cirl Bunting, the Snow Bunting, and the Ortolan.—B. P. BRENT.

(To be continued.)

BEE-KEEPING IN DEVON.—No. XIV.

A MIGRATION—STRUGGLE FOR ITALIAN INDEPENDENCE—A FRUITLESS SEARCH—A BAS LES ÉMIGRANTS!—DRUMMING FOR RECRUITS—A PARTIAL FAILURE—A SUCCESS—AN EXAMINATION—AGED OR HYBRID?—FAR-FETCHED AND DEAR-BOUGHT.

THERE could be no doubt of the fact—disheartened by what must have appeared to them to be the utter and irretrievable loss of their queen and all their treasures, the unfortunate inhabitants of No. I. had rejected the cold shelter of an empty box, and had betaken themselves elsewhere. Not a little chagrined at their loss, I nevertheless congratulated myself on my foresight in having secured the bees from two condemned stocks, which I anticipated would more than supply the place of the missing ones. Need I describe my mortification at finding that in one case the contents of the hive had dwindled to a cluster that might have been contained in a small basin; whilst in the other the bees had followed the example of my own truants, and had entirely disappeared?

But one course remained open to me—viz., to add the small cluster to the Ligurians already in possession of No. I., and endeavour to supply the place of the absentees by the inhabitants of other condemned stocks, if perchance they could be met with so late in the season. Having knocked out the cluster in the usual manner upon a cloth, and surmounted it with the hive for which it was destined, I anxiously awaited the result. In a short time the combined uproar from both No. I. and No. III. (which were placed within a short distance of each other) afforded ample evidence that the foreigners were making a determined, but probably an ineffectual, struggle for Italian independence.

Early next morning I cautiously raised the two hives on their respective pedestals, and carefully examined the dead bees which remained on the cloths, with the view of discovering if either or both of the foreign sovereigns had fallen victims to the fury of the invaders. The heaps of dead and dying, in which the bright colours of the Ligurians were unfortunately but too conspicuous, bore witness to the severity of the conflict; but as the most rigid scrutiny failed to reveal a slaughtered queen, I was not without hope that these all-important functionaries had escaped injury.

The number of dead bees which strewed the ground in front of two adjoining stocks showed that the unfortunate emigrants from No. I. had made desperate efforts to unite their fortunes with their neighbours, and testified at the same time the obstinate resistance which they had encountered. As no increase could be perceived in the population of these hives, it appears probable that few, if any, of the would-be intruders survived the attempt.

So great an amount of confusion prevailed in No. III. during the next few days that I could not but fear for the result. As, however, nothing could now be done, I turned my attention to supplying the deficient population in No. I.

The first condemned hive I was able to meet with was four miles off; and this I operated on during the afternoon of the 12th Sept. It was an old stock; and having thrown a large

swarm rather late in the season, its population was not particularly numerous. The usual amount of drumming expelled the bees; and their queen having been promptly secured, they were conveyed to their old situation, where they were intended to remain until evening. It was not long, however, before the alarm was given that they were attempting to force an entrance into a neighbouring stock. They had evidently discovered the loss of their sovereign, and, declining to take refuge in the empty hive, were rushing about in the wildest confusion. In this dilemma I considered it fortunate that the queen was not destroyed; and having placed her in a small box with perforated cover, I inverted it over a hole in the top of the hive. The good effect was immediately apparent. Gradually the confusion subsided, and all appeared disposed to accept the refuge provided for them. Just as I was about to tie them up with a view to their removal, they appeared to discover that all was not right, and again rushed out, congregating on the exterior of the hive, and endeavouring to force an entrance into the box in which the queen was confined. Finding their efforts ineffectual, they once more betook themselves to the interior; but before all were inside another rush was made. These proceedings having been several times repeated, I deemed it useless to wait longer; and, watching my opportunity, tied up the hive, and removed it with as many bees as appeared likely to congregate within it. On knocking out the cluster at night, I judged them to be about equal to those already installed in No. I., by which they were received peaceably enough.

These repeated mishaps having satisfied me that it was absolutely necessary to confine bees as quickly as possible after depriving them of their queen, I took care to do so with the next stock I was able to procure, and in this case secured all the bees. These having been added to No. I. without any mishap, this unfortunate hive began to re-assume something of its former activity.

The excitement before spoken of in No. III. having disappeared, I determined on the tenth day after the arrival of the two foreign queens to make a careful examination of both hives, with the view of ascertaining if they had survived the massacre of the great majority of their companions. This examination was effected by shifting the combs, bees and all, into another box of the same size (a process which in bar-hives is not at all difficult), and carefully examining every comb until the queen was discovered. After the removal of a few combs I had a full view of the sovereign of No. I., but found to my astonishment, that although of large size, she was nearly as dark as a queen bee of the common species. Whether this variation in colour is to be attributed to age, or to cross-breeding, I cannot determine. My impression is, that she is a hybrid between the Ligurian and the ordinary bee, and, therefore, entirely worthless.

Not a little annoyed at this unlooked-for discovery, I proceeded to examine No. III.; and here the readers of THE COTTAGE GARDENER may imagine my vexation at finding an old ragged-winged common queen, differing in no respect from the ordinary species. I could scarcely credit the evidence of my senses, and brought her into my sitting-room, where she ran about the carpet, as black a queen as I ever saw. I was, indeed, sorely tempted to put my foot upon her, but mastering this disposition with some difficulty, I ultimately returned her to the hive, a far-fetched and dear-bought, as well as a most unsatisfactory exchange for the young and prolific queen which but ten days previously had been so ruthlessly sacrificed by—A DEVONSHIRE BEE-KEEPER.

OUR LETTER BOX.

COLLARED TURTLE DOVES (*Southern Cross*).—The Collared Turtle Dove (*Columba Risoria*), or little fawn-coloured Dove with a black ring or collar about the neck, has been kept at large in England all through the year, and there used to be many flying about at Earl Stanhope's, at Chevening, and also at Penshurst Castle. I have also kept them in a pen, open on the south side, all through the winter, and they did well, and I have no doubt they will succeed in the aviary mentioned. Plain wholesome food as wheat, buckwheat, millet, or canary seed, with grits, clean water, and shelter from wet and easterly winds is all they require.—B. P. BRENT.

DORKING'S TOES (*R. H. N.*).—A Dorking cockerel with only four claws would never obtain a prize.

GROUND OATS (*J. M.*).—These are oats ground, but not dressed. They should be moistened like barley meal before being given to fowls.

BEES IN NUTT'S HIVE (*A. W. Wills*).—Your Nutt's hive appears to have prospered very well, the centre box being quite filled with honey, and a side box with combs. The question as to feeding a stock already rich is easily answered. Let well alone. Should any circumstances arise in the spring to render it desirable, a little food may then be useful,—barley sugar if you like, but the present weight of honey must be considerable. In a little time you may stop the communication with the end boxes, but on no account touch the existing combs. These in the next season will give the bees a great advantage, and save labour and material in forming new ones.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	NOVEMBER 15—21, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
15	Tu	Mesembryanthemum bifidum.	29.653—29.531	45—35	N.E.	—	20 af 7	10 af 4	43 8	20	15 18	319
16	W	Mesembryanthemum curvifolium.	29.429—29.393	38—30	N.E.	—	21 7	8 4	9 10	21	15 8	320
17	Th	Mesembryanthemum octophyllum	29.450—29.538	39—27	N.E.	—	23 7	7 4	35 11	22	14 56	321
18	F	Mesembryanthemum roseum.	29.718—29.601	40—18	E.	—	25 7	6 4	morn.	23	14 44	322
19	S	Mrysiue coriacea.	29.821—29.807	36—17	S.W.	—	27 7	5 4	0 1	24	14 31	323
20	SUN	22 SUNDAY AFTER TRINITY.	30.025—29.942	43—24	N.W.	—	28 7	3 4	22 2	25	14 17	324
21	M	PRINCESS ROYAL BORN, 1840.	30.095—30.009	34—18	E.	—	30 7	2 4	45 3	26	14 2	325

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 48.8° and 35.3°, respectively. The greatest heat, 62°, occurred on the 16th, in 1840; and the lowest cold, 15°, on the 16th, in 1841. During the period 112 days were fine, and on 112 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

CAREFUL attention should now be given to the picking off mouldy and dead leaves, decaying flower-stems, &c., as they spread contagion wherever they touch. Drip to be prevented, and atmospheric humidity to be disposed of by a gentle day fire occasionally, and the free admission of air.

AZALEAS (Chinese).—Introduce a few into heat for early bloom. The *A. Indica alba* and *Phænicea* are best to begin with; to be succeeded by *Smith's coccinea*, and after it any of the other varieties. As decorations for the conservatory or drawing-room they are invaluable where they continue for six weeks or two months in perfect beauty.

CAMELLIAS.—Water, when necessary, to be given in a slightly tepid state, and plenty of air, that the buds may be allowed to swell full and prominent by a slow but sure process. If bloom is required early, to be forwarded by introducing them into a situation where heat is applied.

STOVE AND ORCHID-HOUSE.

Withhold moisture entirely from the roots of deciduous Orchids, and such as are sinking into a state of repose. Any late specimens, or importations, making late growths to be favoured with the best light situations in the house and a little water, to keep up the vitality sufficient to produce the secretions necessary to carry them safely through the dull days of winter. Look over all growing plants, and see that they do not suffer for want of water. Look to every Orchid, even the smallest growing on blocks or in baskets, they all require attention. Repot or surface dress any that require it. A favourable day to be chosen to wash the lights for the more free admission of that agent most indispensable for their health. The whole to be kept neat, and free from insects; and the plants on stages, tables, or suspended from blocks, baskets, &c., to be arranged in a manner the most suitable for a picturesque and pleasing effect.

FORCING-HOUSES.

Where early forcing is intended it is advisable to give a thorough cleansing to the houses by limewashing and dressing the wood of Cherries, Figs, Peaches, Vines, &c., as frequently directed.

BEANS (Dwarf Kidney).—Sow in six-inch pots; when crocked to be filled within three inches of the rim with a compost consisting of old Cucumber or Melon mould, rotten dung and leaf mould in about equal proportions. To be placed in any convenient part of the forcing-house for a few days until the soil is warm. The Beans are then sown about ten or twelve in each pot, and pressed by the finger about an inch below the soil. In a week they will be up; to be then thinned out, according to the strength of the plants, to six or eight in each, and to receive a gentle watering. When the two first leaves are fully developed the plants to be earthed up as high as the cotyledons. To be regularly syringed and watered

at the roots, taking especial care that they do not become too wet, or they will damp off. When they have made two joints to be stopped, to cause them to produce laterals and bearing branches. The plants to be placed as close to the glass as possible. The *Chinese Dwarf* and *Fulmer* are good sorts for forcing.

FIGS.—A temperature of about 40° will suit them at present; if allowed to get lower they are very apt to suffer. Trees in pots to be removed to any house where that degree of temperature is kept up.

PEACHES.—Where the roots are inside, and have been kept dry, an application of weak, clear liquid manure, at the temperature of summer heat (76°), will act as a stimulant to the roots, whose services are required before much excitement takes place at top.

PINES.—Now, at the dullest season of the year, it is necessary to be very cautious in regulating the bottom and surface temperatures, more especially in the succession-houses or pits: a bottom heat of about 70°, with a steady top temperature of about 60° during the day, and about 55° during the night, will keep the plants in a comparatively comfortable state of rest, neither allowing the temperature to decline so low as to reduce their vitality to such a degree as to endanger their restoration to vigour in proper season, nor to rise so high as to excite them into a growth that would be immature for want of solar light and heat. A moderate application of water will also be necessary.

VINES.—When the Grapes are all cut, prune the Vines without loss of time, that the wounds may have sufficient time to get perfectly healed before they are excited into growth. If delayed until early spring, bleeding will be sure to follow. Vines in pots intended for forcing should either be placed within the protection of the house appropriated to them, or secured from the effects of severe weather.

WILLIAM KEANE.

HEATING, AIRING, AND WATERING A SMALL GREENHOUSE.

NOTWITHSTANDING all that has been said on these matters, I am not surprised that "M. L. E." should still look upon them as somewhat mysterious; and I have no hope that such very definite directions could be given as in the case of making cuttings, &c.—nay, I should be afraid that such directions would only mislead if they were to be substituted for the ever-watchful care of the superintendent. There is no royal road to success in these matters. Circumstances must be our guide, and without that guide mere routine directions will be "will-o'-the-wisps" to lead us to the bogs of disappointment and failure.

The difficulty is further increased when, as in the case of our fair correspondent, plants so different as *Acacia armata* and *Stephanotis floribunda* are grown in the same house; and we are left somewhat in doubt by the mode of expression whether the necessary treatment to keep plants alive and healthy, or to have them in a flowering state in winter, is required. Such plants as Camellias, Acacias, and the great bulk of our bedding-plants will keep very well for a time if not below 35°, with plenty of air in sunshine, and these will bloom as the heat increases by the lengthening of the days; but to have a house full of bloom

in midwinter would require an average temperature of from 45° to 50°, and fully the latter if the *Stephanotis* were to be kept healthy. In the first case, in a winter like the last, little firing would be required, except when absolutely frosty, or the weather was dull and foggy. In the latter case, a fire, however small, would be wanted almost every twenty-four hours from the end of October to April, and more, of course, if the weather were severe.

I should have liked, also, to know the mode of heating adopted by our correspondent; as, after much consideration, I have come to the conclusion that a flue of brick, or strong earthenware, or cement pipes, is the most efficient, economical, and least troublesome for small *detached* greenhouses, where plants are only to be saved over the winter; and, but for the extra expense, I should prefer hot water where more regular and continued heat was to be maintained. I know that some will look upon the old flue as something barbarous in these days of heating by water, steam, and gas; but in the case of small, separate houses I have a strong impression that the heat that goes up the chimney from some heated by hot water would be sufficient to heat as many more, could it only be caught and made available. With or without a right use of a damper there is little waste of heat from a flue, as the heat must traverse its length before it can get to the external air; and, provided the flue is kept clean, most of the heat will be absorbed before getting to the external air. In houses heated by hot water, whatever the construction of the boiler, unless the damper is used with judgment, much of the heating power is lost. Simple though the matter is, it is difficult to get firemen to attend to it. Many a poor fellow gets smothered and choked with smoke on lighting a fire, because he cannot think of drawing out the damper to give the smoke free egress.

To attain a little definiteness I will suppose a sort of medium case, in which plants are not only to be grown slowly and kept securely, but such things as *Camellias*, *Epacris*, *Cinerarias*, *Primulas*, may open and keep open their blossoms without falling or fading prematurely. For such a house the temperature at night should not, except rarely, be under 40°, and as seldom by fire-heat above 45°. In sunshine a temperature of from 50° to 60° will do good rather than harm, provided a little air was given early. Though, however, much fire-heat is to be avoided, as tending to draw the plants by subjecting them to a dry atmosphere, it will be safer to raise the temperature a few degrees above 40°, rather than let it sink below 35°. It may reach down close to 32° without injury; but a very little at that point may destroy, so far as appearances are concerned, the whole cares and troubles of the season.

When to make a fire, and how much to use, must depend, therefore, on external circumstances. Supposing that you shut up your house early in the afternoon, and before dark the outside thermometer is above 40°, and the sky is overcast, and no appearance of a change, the wind being from the south and west, and the barometer rather low, it is not likely any firing will be required, especially if the moon is growing rather than waning. If the thermometer should be below 40° in the evening, if the sky is getting clear, so as to permit of free radiation of heat, if the wind is veering to the east or north, and the moon rises from near midnight and onwards, then if you do not like getting up early in the morning, you had better put on a fire to make all sure. The fact does not always hold true; but it still amounts to a general rule, with exceptions, that with a young and growing moon in winter, our evenings are the coldest; and in a waning moon our mornings are the coldest. Often when the evenings are dull and overcast, and no likelihood of frost, the moon will rise at two or three o'clock in the morning, the clouds will melt away, the stars shine forth, and before we get up the ground will be crisp, and the plants in our houses, but for the early shutting up the previous afternoon, as near as may be injured. Under such circumstances, if we wish to sleep soundly, it would be wise policy to put on a small, bright fire in the evening, so as gently to heat the flue or the pipes. This will make all secure in such sudden emergencies, will keep up more movement in the confined air all night, and, if frost has come, will enable you to admit fresh air sooner, and more of it. In a continued frost the fire must be continued, but so regulated as not to waste or give too much heat at a time.

Thus much as to the *when*, now as to this *how* of lighting, &c. Every stoke-hole, and more especially one to which a lady like our correspondent goes, ought to be dry, comfortable, and as clean as a kitchen. The furnace-door and the ash-pit door should be made to shut close and open easily. If there is a moveable

valve in the centre of each, so as to admit air at pleasure, it will be an advantage. In the furnace-door, the admission of a very little will prevent great clouds of smoke issuing from the chimney, the fresh air passing over it causing much of it to come into contact with the flame, and thus be burned. The moving of the valve in the ash-pit door will enable you to regulate the draught to a nicety. When a fire is once lighted, has burned, and wants to be replenished, the live fuel should be shoved more to the end of the furnace, and the fresh placed at the end next you. The smoke from the new fuel will thus pass over the bright embers, and be burned in the process. But we are getting on too fast, the fire is not lighted yet. To manage this nicely, a basket of dry straw, shavings, or the refuse of the paper-basket, should be kept in a corner on purpose. Also, a basket of dry wood, chips, or otherwise, and a heap of dry coals, not dusty nor yet large,—say of the size of from Walnuts to hen's eggs. Light a small handle of the paper or straw, place it far enough in to be over the open bars, clap a handful of wood over it, and then a small shovelful of the nice coals, shut the furnace-door, and leave the valve of the ash-pit door open.

I have supposed that the furnace has been cleaned out, and that if there are ashes in the ash-pit, there are not enough to interfere with a draught. Of course, also, the damper is out. In a few minutes the wood and coal will be in active combustion. Then other fuel, such as is used generally, should be added. Coal will do well, but be smoky. Coke is very nice and clean, but if large should be broken. House cinders and ashes are also very good, if the earthiest ashes are removed by sifting. These cinder-ashes, however, should be always kept wet, and then they make splendid fires, and give little smoke. In twenty minutes or half an hour, the fire will be getting bright, and the flue or pipes will be getting heated quite as much as we want, if we anticipate only a little frost. Then break down the fire a little with the poker, to prevent the fuel rising from the bars and caking; then shut the ash-pit door and the furnace-door close, and a few minutes afterwards put in the damper, so as to leave half an inch or so of space, or less, to continue a slow combustion. The heated air is thus kept in the flue or sent again and again round the boiler, instead of getting out of the chimney-pot. This small, single fire will be sufficient if only a few degrees of frost are anticipated. If the frost should be severe and continuous,—say ranging from 10° to 25° below the freezing point, then such a fire will want replenishing during a long winter evening and making up at bedtime, beating down the fuel at the latter operation, and covering with a sprinkling of ashes. If the heat then in the house is sufficient, take out the damper for a few minutes, and then leave all close again as before, so that the fuel thus added may burn slowly, and just prevent the house temperature sinking much. Where economy is strictly carried out, little should be removed from such a furnace but hard clinkers. By thus using the damper judiciously, the fuel will be sometimes caked and coked, and not thoroughly burned; but provided enough of heat was obtained, the caked fuel is ready for further service.

I am particular in thus speaking of using the damper—not merely on the score of economising fuel, but because I have frequently known plants injured in severe frosty weather by the fire burning fast and furiously after the last fuel was put on; so that a house that stood at 40° at seven in the morning would have stood at 50° and higher, as I have seen it do, at two in the morning. The extra heat under such circumstances was injurious enough, but nothing to the dry air that kept sucking moisture from every part of the plants. Even with careful management—so dry is the air generally in severe frost—that when much firing in such a house is needed, it would be advisable to place evaporating pans on the heating medium, and even to sprinkle the floor and the stages, in order that the dry air may get moisture without drying up the plants' roots and tops.

This dry air is so injurious, that in very severe weather, provided frost is excluded by a few degrees, the plants will be more safe from 35° upwards than at 45°.

Sometimes the weather continues equally severe during the day, and no sun to modify it. In all such cases it is better to put on a fire in the morning, if needed, than have too much on at night. Before doing so, however, the sky should be closely scanned; and if the atmosphere is bright, and every chance of the sun getting out, and you feel certain that the house will not get too low before the sun tells upon it, then it would be wise to add no more firing. To settle this in your mind you must also examine the heat in your pipes or flue, not forgetting that half an hour before and after sunrise is generally the most severe in

winter and early spring. For instance: if at seven in the morning in December you find there are 20° of frost out of doors, and your house has sunk to 35°, and you can hardly tell what the day will be, and there is little heat in your heating medium, then it would be advisable to put a small sharp fire on to prevent the house getting lower. But suppose that under similar circumstances your house were from 38° to 40°, and a nice heat in the pipes, and the sky looking clear, and the wind very sharp though not much of it, then it would be folly to think of adding more fire, as the sun will be strong on the house in two or three hours; and in such an outside atmosphere the less of it that you admit voluntarily into the house the better. By that time the heating medium will be pretty well cool, and the sun will exert less heating power on such a cool house; so that a very little air at the highest part of the roof will be all that is required; and if the sun should be clouded much before mid-day you would need to give no air at all. By carelessly, under such circumstances, putting on a large fire in the morning the thermometer mounts up like a rocket, down go the sashes; and the poor plants, after being in the frying-pan of a dried air all night, are tumbled into a scorching frosty air in the forenoon; and young enthusiasts scratch the inquisitive bump as to how no application from the spout of the watering-pot can make hanging distressed foliage hold up its head in vigour and luxuriance. Prevent the fire heat and sun heat thus meeting, and then the little air at the top it will be necessary to give for two or three hours will be moistened and heated as it descends before it plays upon the stems and foliage. If overtaken under such circumstances it would be safer to shade the house a little in preference to giving so much air.

These, it is true, are extreme circumstances; but they are likely enough to happen, and to be forewarned is to be forearmed. There are two other cases in which a fire in the daytime is very beneficial. Sometimes we have raw, foggy weather; and though considerably above freezing point, this fog will get into our houses, and no tender-growing plant likes it. We can do nothing with the external atmosphere, but that enclosed in our glass-cases we can manage. Light a brisk fire; and when it tells upon the house give a very little back air, and the extra heat will change the visible fog into invisible vapour.

Again, sometimes, we have warmish winter weather for weeks—close, muggy; a little wet; plenty of clouds; no sun; thermometer in the house just high enough, and no more; air in the house heavy and stationary. Put a fire on after breakfast to heat the pipes or flue, and open the ventilators, and the atmosphere will at least be thoroughly renewed. Unless in severe frost, other things being equal, the less sunshine there is the more need there is for abundance of fresh air. At such a season it will be safest to give this air during the day, and to shut the house up at night. As a constant subscriber, our correspondent must be well aware that sun heat and fire heat act differently on plants. We want, therefore, no more heat than is necessary at night.

Air-giving has been somewhat anticipated. In fine, mild weather such plants cannot have too much of it. In windy weather give it more sparingly. In dull, raw weather put a fire on during the day at times that it may be given. Open the top sashes first, and shut up the front ones first. In coldish weather open the back ones only. In cold weather let the house rise from 5° to 10° before moving down the top sashes a few inches; if the sun get powerful give a little more. In severe frost give only a little at the top sashes; and if sunny days are expected see that the heating medium is cool before the sun strikes with force. In favourable weather, from November to March, an average time for giving air by degrees would be about nine A.M., and taking it away from two to three P.M.—regulating it, however, much by the weather. On frosty days give air only after the house has risen 10° or so, and take it away an hour or two before the sun has left the house.

As to watering, water a plant when it requires it, and only then. Examine the tests and proofs of dryness frequently given; water in the forenoon in winter; use water from 5° to 10° at least warmer than the average temperature of the house; spill as little water as possible, as in dull weather it will help to produce mist and fogs. When a very bright day comes after a week or a fortnight of dull weather, the leaves of many free-growing plants will often flag when the roots are wet enough, but cannot absorb fast enough to meet the sudden demands of the sun's rays in evaporating. It is useless to pour water into the soil if wet enough already. It is better either to shade a little, or squirt a little water over

the foliage with a fine syringe; also damping the shelves, &c., but so as all will be dry before night. The sun will take up the water from the outside of the leaf instead of drawing it from the inside, and the balance will be restored.

I am sorry that all this is only an oft-told tale, but it may be timely, and therefore useful. R. FISH.

A DAISIED LAWN—SPERGULA PILIFERA.

LAST summer was so dry a one, that the grass on my lawn has become much weakened, and in consequence, I suppose, the Daisies have increased to such a degree, that the eradication by hand is hopeless. Will you inform me what will be best to do, not involving any great expense?—F. W., *Manchester*.

[To rid a lawn of Daisies is a hopeless task, and the most expensive thing about a garden; and yet there is no way one quarter so cheap as to spud them out, *late in the spring*, by hand. For nine years running we had from eight to fourteen lads from a charity school, "till they should hear of something better," every spring, with an old man to look after them, doing nothing for months but spudding out Daisies, and "larking" whenever the old man's back was turned; and we verily believe that for every Daisy they destroyed, fifteen more came to take its place. The truth is, we must get rid of all the grass, the Daisies, the moss, the weeds, and the worm casts, and take to *Spergula pilifera*, which, if it is well done, will soon put down these tormentors and eyesores. On that point there is not the slightest cause to doubt. The discovery of *Spergula pilifera*, as a carpet for lawns, ranks with that of gas, steam, electricity, and cod liver oil.—D. B.]

TRITONIA AUREA CULTURE.

PRAY refer your correspondent, who asks about *Tritonia aurea*, and quotes the directions given respecting it at page 255 of Vol. XIV. of THE COTTAGE GARDENER, to the admirable article at page 175, in Vol. XXI.

I have been studying the plant since March, and find it just as there described; but I have some experiments still undecided. Two things, however, are quite certain: one, that the bulbs should be *grown* in *boxes*, not in *pots*, so as to give space for the Couch-grass-like runners; the other, that if you bring one of these underground runners above the surface, the runner perishes and its bulb also.

I find that each old bulb pushes forth from one to three runners, and that the old bulbs are generally connected, each to each, by a tough root about six inches long, more like thin wire than anything else. Can these be the runners of the preceding year, at whose joints the new bulbs have been formed?

I cannot find anything in THE COTTAGE GARDENER about the double Chinese Primroses; but I am told they are very apt to slip through one's fingers. I have recently invested in some, and should be glad to know how to treat and propagate them. The *alba plena fimbriata* is a beautiful thing.—A COUNTRY SUBSCRIBER.

HEATH-BANK HOUSE.

THE SEAT OF THOMAS KENDALL, ESQ.

THIS interesting place is remarkable for the avenue of *Cedrus deodara* planted in the spring of last year. I have watched its progress with some anxiety, in the hope that the trees would be found able to bear the climate so far north, and grow so as to give a reasonable expectation that the trial would be successful. I am happy to be enabled to state, that so far that hope is realised. At this moment they are growing remarkably well, and many of them have made shoots this year half a yard long, and all of them are covered with their silvery leaves in abundance. Now, as this experiment has so far succeeded so well, I think it will be useful to many other gentlemen who may be desirous to plant a similar avenue, to describe this avenue more particularly, and the mode in which it is planted. It is planted on each side of a winding carriage-drive, about 500 yards long, leading up to the mansion. By this serpentine mode each tree meets the eye distinct from its neighbour, and the tame effect of straight lines is avoided. The trees are planted in a mixture of loam, sandy peat, leaf mould, and well-rotted dung. The park is flat, and the subsoil dry, hence there was no necessity to plant the trees on raised mounds; and the gardener, Mr. G. Houghton,

had the good sense to plant the trees level with the surrounding surface. The old soil was removed six feet wide and half a yard deep, and the holes filled up with the compost—left a trifle higher to allow for settling; and then the trees as soon as they arrived, after soaking their roots in water, were planted, and properly secured to stakes. So well was this business managed that, though the trees came all the way from Slough, and averaged nearly five feet in height, every one of them grew, and is living now. The trees made growth last year, and stood the winter unscathed by the frost. Then, in April, as is well known, came the sharp, cutting, frosty winds which destroyed all, or nearly all, the early blossoms, and the young shoots of even our hardiest trees. Of course, the Deodars suffered also; but those on this avenue did not suffer so very severely, though so much exposed; for it is a fact, that too much protection is equally as injurious to the early young shoots of trees and shrubs as too little. More genial weather succeeded these nipping spring frosts, and the Deodars soon put forth fresh shoots and leaves, and are now as healthy as need be desired. I consider this avenue is now quite safe, and the fact is established, that this fine tree is well adapted by its graceful habit for the purpose to which it has been applied here.

As a matter of course, each time I visited this place to note the progress of the Deodars, I indulged myself with a peep into the gardens. Though not so extensive as some places that I have described, yet, under the persevering and never-relaxing care of Mr. Houghton, the sight is always a pleasing one.

The range of hothouses consists of a stove thirty feet long, with a path in the centre dividing a pit filled with bark, in which three rows of fruiting Pine Apples are grown very finely; and a platform next the front window, on which I noted some well-grown Lycopods and many nice young specimens of stove plants. Advantage is taken of the bark-bed to grow plunged in it at each end such plants as require bottom heat at certain stages of their growth. I noted particularly a good plant of *Dipladenia Houtteana* trained on a balloon-shaped wire trellis, and in full flower. The colour is a delicate pale rose in the centre, deepening in colour towards the margin, which is almost of a crimson hue; also, an equally good and better-bloomed *D. acuminata*. The flowers of which, forty in number on this plant, are of a deep, uniform rose colour. The question was asked which was the best: I could only say, they are both beautiful and equally worthy, and both distinct from each other and from the older *D. crassinoda*. There was also a promising specimen of the best of Allamandas—viz., *grandiflora*.

Adjoining this stove there are two vineries, 52 ft. long by 15 ft. wide, with rafters 18 ft. long. These houses were finished building in the early part of 1857, and the Vines were planted on the 1st of May in the same year; and so well have they grown that they now reach the top of the rafters, and are bearing a dozen bunches of good Grapes on each Vine,—certainly too heavy a crop for Vines of that age; but they were so strong the first year, and showed so well this year, that the temptation to leave so many could not be resisted. The shoots of the first year have been cut down to about half the length of the rafters, and they have not only borne and swelled well the crop, but have made equally strong leading-shoots above the bearing part this season. It is true, some of the *Hamburgs* are not of that deep black colour so desirable, yet they have ripened well, and no shanking is perceptible. I do think, however, that had half the number of bunches been left the colour would have been perfect and the berries larger. However, the Vines are strong enough, and, no doubt, the fruit will be good next year. I was, of course, desirous of learning how the borders were made, and of what materials to bring forth such a satisfactory result in so short a time. In the first place, the bottom of the border is covered with stone flags, then walls of brick are built across the border opposite the centre of each light, then upon the flags a layer of brickbats six inches thick, and upon that layer the soil, formed with turf pared one inch and a half thick from a pasture-field, thoroughly mixed with ground bones and a small addition of leaf mould. This soil is two feet and a half thick, and the border is fourteen feet wide. By this arrangement each Vine has its own separate space to grow in, and the bones gradually decomposing will give nourishment to the Vines for many years. It will be seen that every precaution has been taken to give the Vines a dry, substantial, lasting border, composed of soil neither grossly rich, nor too porous to the drought of summer.

I saw this place in June this year, and witnessed a grand display of Calceolarias, large bushes of the best shrubby kinds, and large plants of seedling herbaceous varieties—and a very splendid show

they made. Had any nurseryman such a lot of seedlings he might have selected a dozen or more of them, and sent them out as new varieties, honestly and worthily deserving of public patronage. The best varieties of Pelargoniums here are so well grown, that I am sure if they had been exhibited the cultivator would have obtained many prizes. They are now all cut down, the balls reduced, and repotted in small pots, and placed in a cold pit to start into growth, managed in the most approved method to form good plants well bloomed next year. In the same pits I noticed a considerable number of half-grown specimens of Boronias, Apelexis, Pimeleas, Leschenaultias, and other New Holland Plants, low, dense bushes, that in a year or two must render the grower a formidable antagonist at the local exhibitions. At the other side of the garden there is a lean-to house behind a north wall. This is a most useful house. Every grower of plants ought to have one similarly situated. It answers several purposes: it serves to retard Azaleas from coming too early, and to prolong the season of bloom when they are in flower. In summer it is a fine receptacle for newly-potted New Holland plants and Heaths, protecting them from bright sun, heavy showers, and a too-high temperature. In it I noted many finely-formed specimens of such plants too numerous to particularise.

In a corner near the vineries there is a novel kind of summer plant-house, formed with rafters and a front of uprights, the whole covered with oiled canvass. In this canvass-house the Calceolarias passed their blooming season, relieving the other houses greatly by their absence. As a temporary cheap summer-house for plants in bloom, such a place is very useful and by no means unsightly.

The pleasure-grounds are not too extensive; and are, consequently, easily kept in the perfect order they are here. A small neat flower garden planted entirely with different coloured Verbenas had a pleasant cheerful look. On the lawn there is a fine Holly; and at its base a bed was raised about eight inches, the grass forming the support for the soil. This bed was planted with *Tom Thumb* Geranium, the glowing colours of the flowers contrasting splendidly with the dark-green foliage of the Holly. There is a raised terrace next to the mansion formed with a sloped bank of verdant green turf; and a gravel walk on the top ornamented with elevated vases filled with bright scarlet Geraniums, rich yellow Calceolarias, and fringed with blue Lobelias.

I understand it is in contemplation to put up a large house for stove and greenhouse plants to hold the handsome specimens as they advance in size, thus relieving the vineries from their presence; and then the Vines will receive the proper treatment they richly deserve.

On looking over this paper I find I have omitted what our Editors require in all reports of places that we may visit—namely, their locality and the means of reaching them. Heath-bank House is near Cheadle in Cheshire, and an omnibus runs every hour from Manchester to that pleasant village. T. APPLEBY.

LADY DOWNE'S SEEDLING AND FOSTER'S WHITE SEEDLING GRAPES.

In the *Gardeners' Chronicle* for October 29th, 1859, p. 872, a statement is made that *Lady Downe's Seedling* Grape was raised at Benningborough Hall, in Yorkshire, the seat of the Hon. Payan Dawney, by the gardener, Mr. Foster, and that the original seedling, or parent plant, is still growing in one of the vineries at that place. Now, if that is true, how came it by the name of *Lady Downe's Seedling*? It is also stated in the same communication, that it was raised along with another deliciously sweet White Grape, called *Foster's White Seedling*, and that both were raised at the same time, and from the same parents. Now, surely such a statement has something very paradoxical about it; but as little reliance can be placed on statements made by an anonymous writer in a newspaper, it may turn out incorrect; still it should be set to rights if unfounded.

It is generally understood that *Lady Downe's Seedling* had a different origin, and it is even thought by some persons as not distinct from *Trenttham Black*. Pray let us have your experience in the matter, and, at the same time use your influence in bringing the subject before the Pomological Society, which is the only reliable source we have, or can depend upon, at the present time. The Council of that Society I see is doing invaluable service to the horticultural public just now, in collecting together and investigating, at the Society's monthly meetings, all the different kinds of Grapes, both of foreign and home growth—a subject which will

well repay its members, from the judicious manner in which its funds are expended in the undertaking, and would in the present instance render a great service to Grape growers, by ascertaining what are the real merits of the Grape called *Foster's White Seedling*, so highly praised in the *Chronicle*; so that we could depend upon not having the expense and vexation of playing the *Jostling's St. Albans* game over again, and in which the *Chronicle* played a goodly part.—VITIS.

[*Lady Downe's Seedling* and *Trentham Black* are two very distinct Grapes. We have seen *Foster's White Seedling*, and it bears considerable resemblance to the *Grove End Sweetwater* and *Scotch White Cluster*. Can any of our correspondents give us any information about this variety?—EDS.]

BUTTERFLIES AND MOTHS, WITH DATES OF THEIR CAPTURE.

I SEND you a list of Butterflies and Moths taken since March, 1858, when I first commenced to notice entomology.

BUTTERFLIES.

March 22	Vanessa Urticæ	June 13	Pamphila Sylvanus
" 22	V. Polyclorus	" 13	Hipparchia Janira
" 22	V. Io	" 18	Nisoniades Tages
" 22	V. C-album	" 18	Melitæa Euphrosyne
" 24	Aporia Rapæ	" 18	M. Selene
April 18	A. Napi	" 30	Thecla W. Album
" 20	Euchloe Cardamines	" 30	Vanessa Cardui
" 20	Gonepteryx Rhamni	August 4	Colias Edusa
" 23	Hipparchia Egeria	" 4	Chrysophanus Phlæas
June 1	Vanessa Atalanta	" 18	Hipparchia Tithonus
" 6	Argynnis Paphia	" 24	Vanessa Antiopa
" 6	A. Euphrosyne	" 24	Hipparchia Megeria
" 6	Polyommatus Alexis	" 24	H. Hyperanthus
" 13	Thymeale Alveolus		

MOTHS.

March 24	Hibernia Progemmaria	June 17	Hypena proboscidalis
" 27	Diurnia Fagella	" 18	Heliodes heliæcea
April 11	Triphosia Dubitata	" 19	Paracolax tarsicrinalis
" 12	Semiphora Gothica	" 19	Caradria Cubicularis
" 12	Orthosia Stabilis	" 19	Plusia Iota
" 12	O. Cruda	" 19	P. Inscripta
" 13	O. Instabilis	" 19	P. Gamma
" 15	Micoptera Sattelitea	" 19	Campea Margaritaria
" 15	Glea Vaccinni	" 19	Pericallia Syringaria
" 15	Scoliopteryx Libatrix	" 21	Xylina putris
May 2	Cidaria Fluctuata	" 23	Onodestis potatoria
" 6	C. Onidentaria	" 24	Graphiphora festiva
" 6	Depressaria Ocellana	" 24	Cucullia Umbratica
" 10	Cidaria Propugnata	" 25	Chlorissa Thymiararia
" 13	Ceophora Sulphurella	" 25	Cleora Bajularia
" 17	Hemerophila Abruptaria	" 25	Harpalyce fulvata
" 19	Rumia Crategata	" 25	Aglossa pinguinalis
" 19	Cabera Pusaria	" 26	Ourapteryx Sambucaria
" 19	Cidaria Ferrugata	" 26	Cidaria Miaria
" 21	Lozogamma Petraria	" 26	Ennomos flexula
" 22	Anticlea Derivata	" 30	Zerena Rubiginata
" 25	Lampropteryx Suffumata	" 30	Halia Vauaria
" 25	Spilosoma Menthastris	" 30	Margaritea Sericealis
" 27	Polyphasia Marmorata	" 30	Peciophasia Marginata
" 28	Phlogophora Meticulosa	July 1	Margaritea Verticalis
" 31	Mesographe forficilis	" 1	Plusia Chrysitis
June 1	Zerena Adustata	" 5	Porthesia Chrysorrhea
" 3	Macroglossa Stellatarum	" 5	Steganolophia prunata
" 5	Cherocampa Elpenor	" 15	Thyatira batis
" 5	C. Porcellus	" 15	Cosmia Trapezina
" 6	Odontopera bidentata	" 27	Apamea Dydimia
" 6	Galleria Cereana	" 27	Nudaria Mundana
" 6	Cidaria Montonata	" 27	Lithosia Complana
" 6	Harpalyce Tristata	" 27	Crocalis Elinguaria
" 7	Agrotis Exclamationis	" 27	Abraaxa Grossulariata
" 8	Grammesia Trilinea	Aug. 18	Pyrophila Tragopoginis
" 9	Sphinx ligustri	" 18	Amphipyra pyramidea
" 9	Triphena pronuba	" 18	Graphiphora Plecta
" 10	Dasychira pudibunda	" 23	Lytea Umbrosa
" 10	Cucullia Umbratica	" 24	Mormo Maura
" 11	Chlorissa putataria	Sept. 3	Segetia Xanthographa
" 11	Camptogramma Bilineata	" 3	Heliophobus popularis
" 11	Hammatophora bucephala	" 6	Ceratopacha diluta
" 13	Hadena plebeia	" 8	Catocala Nupta
" 13	H. remissa	" 17	Orthosia Litura
" 14	Hepialus humuli	" 18	Xanthia Gilvago
" 14	H. hectus	" 21	Orbona Ferruginia
" 14	Pterophorus pentadactylus	" 21	Orthosia Iota
" 14	Xylophasia polyodon	" 21	Xanthia Aurago
" 14	Apatela Aceris	" 21	Orthosia lunosa
" 14	Lophoderus ministranus	Oct. 26	Hymera pennaria
" 14	Achroia Alvearia	Nov. 1	Oporabia dilutata
" 14	Eudorea dubitalis	" 5	Calocampa Exoleta
" 17	Eurhypara Urticata	" 8	Cheimatobia brumata

The above list will show when the varieties are flying, as they are all dated as they were taken. What I have taken in 1859 are much the same as the above, with the exception of a few fresh ones. I should recommend looking after the Ivy blossoms at

night by candlelight, as there are some very good Moths to be taken then. The above Moths and Butterflies have all been taken in the west of Herefordshire.—WM. WRIGHT, jun.

[The above ought to stimulate others of our readers. It is communicated by a lad only sixteen, and bears good testimony to his industry and judgment.—EDS.]

GAS-AMMONIACAL LIQUOR AND LIME.

IN your tract on the "Agricultural and Horticultural Uses of Ammoniacal Liquor, &c.," you recommend to mix sulphuric acid with it, &c. Suppose in the purification of gas a wet purifier or washer is used next to the hydraulic main, and that in this washer lime is used, would any injury accrue to the ammoniacal liquor by this addition? or would the mixture be all the better for the combination of the ammonia with lime preparatory to the addition of sulphuric acid to the two?

In a few words, whether is better—lime, ammonia and sulphuric acid, or ammonia and sulphuric acid only for agricultural purposes?—F. S. of L.—

[Beyond any doubt ammonia and sulphuric acid alone are to be preferred. They form sulphate of ammonia, a manure which may be applied advantageously to every plant cultivated by the farmer or gardener. With lime sulphuric acid forms sulphate of lime, a salt useful almost exclusively to the Clovers and Trefoils, and for them a very little of it is sufficient. Therefore, both for efficiency as a manure, and for economy in the quantity of sulphuric acid required, ammonia without any admixture of lime is preferable.]

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 52.)

ASTRANTIA—MASTERWORT.

Nat. ord., Umbelliferae. Linn. Pentrandria Digynia.

GENERIC CHARACTER.—*Umbel* fascicled; involucre length of umbels, slightly coloured. *Calyx* persistent. *Fruit* oblong, encircled by furrowed, wrinkled, small bladders.

ASTRANTIA CARNIOLICA (Carnioline). *Radical-leaves* five to seven lobed, lobes oblong, rather acute, sub-trifid, mucronately-toothed; *involucre* quite entire, larger than umbel. 1 ft. Striped. June. Carniola.

A. CAUCASIA (Caucasian). *Radical-leaves* palmate-parted, lobes five, rarely three, oval-oblong, deeply bi-serrated, bristly ciliated; *stem-leaves* nearly palmate; *involucre-leaves* oblong-lanceolate, with one to three spines at the apex, rather longer than umbel. 6 in. Pink. July. Caucasus. Called, also, *A. intermedia*.

A. MAJOR (greater). *Radical-leaves* five-lobed, lobes trifid, acutely toothed, bristly ciliated; *involucre-leaves* linear-lanceolate, quite entire. 2 ft. Striped. June. Alps of Europe.

A. MAXIMA (greatest). *Radical-leaves* palmate-parted, lobes three, ovate-lanceolate, unequally serrated, bristly ciliated; *involucre-leaves* ovate-lanceolate, bristly ciliated, rather longer than umbel. 2 ft. Pink. July. Caucasus. Called, also, *A. Helleborifolia*.

A. MINOR (smaller). *Radical-leaves* digitate, segments seven or nine, lanceolate-acute, deeply toothed; *involucre-leaves* entire, length of umbel. 6 in. Pink. June. Switzerland.

A. PAUCIFLORA (few-flowered). *Leaves* palmate, segments five to seven, entire at base, finely toothed from the middle to the point; *involucre-leaves* entire, longer than umbel. 6 in. White. July. Sicily.

A small tribe of interesting, though not very showy, plants, requiring a dry sandy loam.

Propagated very fast by dividing the plants in March, and planting them immediately in fresh soil, where they are to grow and flower. Here I would remark that too many cultivators, when they take up their herbaceous plants for increase, plant them again in the same soil, forgetting, or probably not thinking of, the fact that the plants have exhausted the soil of the nutriment proper for the species: hence the plants grow poorer and poorer, and do not make the display they would do if fresh soil, either entirely or at least in part, had been supplied. No doubt this is the principal reason why herbaceous plants do so ill in town gardens and squares. In my instructions under the head "propagation" I always advise *fresh soil* every time the plants are

divided. If not the whole applied anew, at least let half of it for a foot square or more be given to each plant: it will then have a chance to thrive, and obtain nutriment for several years.

AUBRIETIA.

Nat. ord., Cruciferae. *Linn.* Tetradymania Siliculosa.

GENERIC CHARACTER.—*Calyx* base bi-saccate. *Petals* entire. *Shorter stamens* toothed. *Silicle* oblong, crowned by the style, valves concavely-plane. *Seeds* not margined.

AUBRIETIA DELTOIDEA (three-angled). *Pedicels* longer than the calyx; *stems* sub-shrubby, prostrate; *leaves* lanceolately deltoid, with one or two large teeth; *silicles* hairy, inflated. 3 in. Purple. April. Levant. Divided from *Arabis*.

A. PURPUREA (purple). *Pedicels* shorter than the calyx; *leaves* oblong, sometimes entire, sometimes toothed, hispid. 3 in. Purple. April. Greece.

A. ——— MOOREANA (Moore's purple). 3 in. April. Gardens.

Low-growing spring-flowering plants, with purple flowers, generally recommended as rock plants; but they live and thrive well in a well-drained, dry, sandy loam, especially if a spadeful of sandy peat be added to the loam.

Their pretty purple flowers are produced in March and April very copiously, and are then very ornamental. After they have done blooming, the patches which they form should be considerably reduced in size, in order to keep them round, neat plants. They are all evergreen.

Propagated by division. Take up the plants, and divide them, taking care that each patch has its share of roots. Plant the divisions directly in fresh soil, and give a gentle watering to settle the soil. Such divisions with moderate care will last several years.

BAPTISIA.

Nat. ord., Fabaceae. *Linn.* Decandria Monogynia.

GENERIC CHARACTER.—*Calyx* campanulate, rather attenuated at base, four or five-toothed, persistent. *Petals* clawed, rather unequal; vexillum spreading, reflexed. *Stamens* free, deciduous. *Pod* bladderly, rather leathery, pedicelled, crowned by style, many-seeded.

BAPTISIA ALBA (white). *Branches* glabrous; *leaves* ternate stalked, glabrous; *leaflets* elliptic-oblong, obtuse; *stipules* deciduous, subulate, shorter than petioles; *racemes* terminal; *ovaries* glabrous. 2 ft. White. June. N. America.

B. AURICULATA (eared). Blue. June. N. America.

B. AUSTRALIS (southern). *Stem* branched, diffuse; *leaves* stalked, smooth; *branches* smooth; *leaflets* oblong-cuneate, obtuse, four times length of petioles; *stipules* lanceolate-acute, double length of petioles; *racemes* few-flowered, elongated; *calyx* quadrid, lower segment blunt; *Pods* apiculated. 2½ ft. Blue. June. N. America.

B. CONFUSA (confused). *Stem* branched; *leaves* stalked, smooth, leaflets oblong-cuneate, or obovate; *stipules* linear-lanceolate, double length of petioles; *racemes* elongated; *flowers* alternate; *bracts* permanent, lanceolate, acuminate, longer than pedicels. 2 ft. June. Blue. N. America.

B. LANCEOLATA (lance-leaved). *Branches* downy; *leaves* sessile, downy, leaflets stalked, cuneate-lanceolate, obtuse; *flowers* axillary, solitary, pedicels short, upper in a raceme. 1 ft. Yellow. July. N. America.

B. MINOR (lesser). *Stem* erect, solid, glaucous; *leaflets* rhomboid-lanceolate; *stipules* lanceolate, longer than petioles; *racemes* axillary, bracteate; *bracts* cordate-lanceolate, lower permanent; *vexillum* entire. 1 ft. Blue. June. North America.

B. MOLLIS (soft). *Stem* finely downy; *leaves* stalked, finely downy, leaflets rather rhomboid-lanceolate; *stipules* foliaceous, linear-lanceolate; *racemes* spicate, terminal; *calyx* finely downy, teeth acute. 1½ ft. Blue. June. N. America.

B. PERFOLIATA (perfoliate). *Plant* smooth; *leaves* perfoliate, roundish, quite entire, rather glaucous; *flowers* axillary, solitary. 3 ft. Yellow. August. Carolina.

B. TINCTORIA (dyer's, or Wild Indigo). *Branches* smooth; *leaves* stalked, smooth, upper nearly sessile, leaflets roundish-obovate; *stipules* setaceous, almost obsolete; *racemes* terminal. 1½ ft. Yellow. July. N. America.

B. VERSICOLOR (various-coloured). White, purple. N. America.

B. VILLOSA (long-haired). *Stems* and *calyces* adpressed-pubescent; *leaves* nearly sessile, downy, leaflets lanceolate-obtuse; *stipules*

linear, longer than petioles; *racemes* terminal; *pod* oblong, cylindrical. 2 ft. Yellow. June. N. America.

A genus of rather tall, handsome, hardy plants not much known, but worthy of general cultivation; the foliage, as well as the flowers, is handsome. They require a deep, rich, sandy soil, with a portion of sandy peat added to it.

Propagated by taking up the plants in spring, and dividing them into two or more portions, according to the size of each plant. Replant immediately in fresh soil, pressing it down firmly to each division, and covering the buds fully an inch deep. Cut down the stems in autumn, and dig the soil around each plant, adding more fresh compost every year. So managed they will not need removal again for seven years. T. APPELEY.

(To be continued.)

NEW BOOKS.

WHEAT.*—Gardening, as we have often remarked, is the elder sister of Farming, and from the day of her birth in Paradise until the present century has always taken the lead in improvements which her younger sister has tardily and reluctantly followed. From times antecedent of all records, gardeners have sown their seeds in rows, but farmers never thought of following their example until the time of Tull, and long did they deride and neglect his suggestion. Similarly from times past all remembrance have gardeners employed liquid manures; but even still do farmers too generally allow the rich drainage of their dung-hills to flow away unused, and still fewer are they who wisely prefer liquid manuring. Many are the similar instances we could adduce of Gardening leading the van, and Farming, after a long interval, appearing in the rear of advancement; but we will only adduce one more illustration—it is the latest, and is the publication which leads us to this notice.

Many are the gardening works which have appeared in monthly numbers, each number devoted to a full and connected account of one or more of our garden crops; but not until this present year did any similar work on agricultural crops issue from the press; and we thank Mr. Wilson, the Professor of Agriculture in the University of Edinburgh, for so well taking the lead—so well, that we wish he had been still more copious in his details.

Professor Wilson glances over the ancient history of Wheat; dwells more upon the modern species and varieties; particularises the soil best adapted to its growth, the modes and expenses of culture, storing, and thrashing, concluding with a description of its diseases, insect enemies, and chemical constituents.

We repeat, what is done is well done, and we regret that the author had not more space, for he had materials around him to fill ten score, instead of five score pages. It is probable that the restriction arose from a wise caution, for farmers are not yet a reading class, and most of them think a book an evil proportionately with its size. Nothing, perhaps, evinces this more than their universal apathy relative to the history of their most valued products. As to know the pedigree of a bull increases its value, if that pedigree is to be found in Coates' Herd Book, they are so far lucre-tempted to be learned in bullock biography; but "Of what use is it to know anything about the history of Wheat?" So general is this feeling that we do not know of any author who has ventured to enter deeply into the subject. Let us gather together a few fragments relative to the history of this grain in our own country.

We believe it was cultivated here when Cæsar led hither his legions more than nineteen hundred years ago. It is quite certain that the Romans imported Wheat from Gaul, for Pliny says, "The lightest in weight comes from thence; when weighed a modius does not amount to more than twenty pounds."—(*Pliny's Nat. Hist.*, l. xviii., c. 12.)† It is equally certain that the Britons on the coast of Kent, where Cæsar landed, resembled in their manners, customs, and arts their Gaulish neighbours. That like them they cultivated Wheat we have no doubt; for, upon one occasion, when the Britons surprised the Roman soldiers, Cæsar tells us those soldiers were foraging, and cutting down the corn of the natives. He makes use of the word *frumentatum*, a

* *Our Farm Crops—The Wheat Crop.* By John Wilson, F.R.S.E., &c. London: Blackie and Son.

† A modius was equal to a peck and a half of our measure, so that the Gaulish Wheat of those days weighed rather better than 53 lbs. per bushel. Wheat from the coast of Africa weighed as much as 23 lbs. per modius, so that one of our bushels of this would have weighed fully 60 lbs.

term including only Wheat and Barley, for the Oat was then unknown. If the soldiers had been only foraging for their horses—that is, were cutting Barley, Cæsar would have made use of the word *pabulum*. But he leaves no doubt upon the subject, by saying immediately after, that the corn had been reaped in the adjacent parts (*ex reliquis partibus demesso frumento**).

The Anglo-Saxons next ruled over England, and it is quite certain that they cultivated Wheat here. Their contemporary historian, Bede, states that they sowed it in the spring (*Eccles. Hist.*, p. 244); and the rent paid for one farm, in a record still existing, was ten mittas of malt, five of grits, ten mittas of the flour of Wheat, eight gammons, sixteen cheeses, and two fat cows; and in Lent eight salmons.—(3. *Gale's Hist. R.* 410). It would not be difficult to trace out their modes, and even their superstitions relative to its culture. Thus, some 1000 years ago, we read that “the monks of St. Edmondsbury had certain wax candles which ever and only they used to light in Wheat seeding; these they likewise carried about their Wheat grounds, believing verily that thereby neither darnell, tares, nor any other noisome weedes would grow that yeare amongst the new corne.”—(*Weaver's Funeral Monuments*, 724.)

The very name of Wheat is derived from the Saxon, and seems to have its origin from the word *Hwæt*, signifying bold, as the name of its ear is derived from *arwe*, because of its resemblance to an arrow.

THE ORCHARD-HOUSE.†—It might have been necessary merely to state that this is the sixth edition of Mr. Rivers's useful treatise on the orchard-house, as our readers must, ere this, be familiar with its contents; but this new edition contains some important matter which has not appeared in the previous ones. At page 36 we have instructions for growing Apricots as pyramids, in pots, and managing them on a principle which Mr. Rivers terms “pruning made easy;” and again, at page 51, we have similar instructions on the same mode of treating Peaches and Nectarines. The plan is that adopted by M. Dubreuil, and which he calls *cordon droit*. The following extract will explain, in Mr. Rivers's own words, how this is done:—

“I now propose a modification of this mode of culture for the orchard-house, by forming Peach and Nectarine trees into close, compact pyramids, like an upright Cypress, and annex a figure of a maiden tree, potted and pruned. For this purpose, maiden trees with straight stems and well furnished with lateral shoots, should be selected and planted in 11-inch or 13-inch pots. They should not be more than from four to five feet high; if more, their tops may be cut off to that height. Each lateral shoot should be cut in to two buds: these, and the buds in the stem, will, in May, give numerous shoots. As soon as they have made three leaves, pinch off the third leaf with the end of the shoot, leaving two leaves. These pinched shoots will soon put forth a fresh crop; every shoot of this and all succeeding crops must be pinched off to one leaf as soon as two or three leaves are formed. Sometimes there is a small leaf at the base of the shoot which is blind, i.e., has no bud in its axil; this must not count for one.

“If it is desirable to increase the height of the tree, the leading shoot at each pinching may be left with five or six leaves.

“This incessant summer pinching of the shoots of a potted tree, in the climate of the orchard-house, will, in one season, form a compact, Cypress-like tree, crowded with short fruit-spurs. In spring these, if too crowded, may be thinned out with a sharp penknife, so as to leave them as nearly as possible at regular distances, and in summer the fruit should be thinned and the shoots pinched in as directed above every season.

“A close, fruitful tree will thus be formed, on which the fruit will be fully exposed to the sun and air. A great number of trees may in this way be grown in a small space, three trees occupying the space required for one bush, and they will form beautiful objects of high culture.”

We have seen trees cultivated on this plan at Mr. Rivers's, and all we can say of them is, that they are positively charming.

THE YOUNG LADY'S BOOK.‡—We are informed in the preface that “this work was first published nearly twenty years ago,

with about half its present number of woodcuts at one guinea; and even at that high price ran through no fewer than six editions in as many years.” It is, therefore, owing to the well-known enterprise of Mr. Bohn that the “Young Lady's Book” is now brought within the reach of many who, twenty years ago, might have sighed for it in vain.

This is indeed a young lady's book; and treats not alone of what are usually termed accomplishments, but upon subjects of a scientific character, which have of late years become a very important feature in female education; and the subjects are all written in that popular and intelligible style which is so much appreciated in the present day by those who desire to acquire a knowledge of scientific subjects divested of their technicalities and conventionalisms. Such subjects as “Embroidery and Fancy Work,” “The Toilet and Costume,” “Archery,” “Riding,” “Music,” “Dancing,” and such other accomplishments we do not pretend to be able to appreciate; but when we state that the Instrumental Music has been revised by Dr. Sterndale Bennett, the Vocal by Signor Rommi, and the other subjects we have just mentioned by others equally eminent in their respective departments, we have an assurance that they have been ably performed.

Among the scientific subjects we find Mineralogy revised by Professor Tennant; Conchology by Mr. Woodward, of the British Museum; and Entomology and Ornithology (or the aviary), by Mr. Dallas. These are treated very fully, and in such a manner as to enable young persons to acquire a respectable knowledge of them; and being copiously illustrated with excellent woodcuts, they cannot fail to do so after a little application.

That part of the work devoted to Floriculture and Botany, and for which Mr. Bohn holds himself responsible, is so creditably done that he has no reason to be ashamed of his performance.

We recommend the work most cordially as one abounding in sound instruction and intellectual amusement.

PROLIFEROUS GERANIUMS.

HAVING observed what Mr. Beaton says of the sporting of Geraniums occasionally, by throwing up a truss of pips in place of a single pip in the original truss, I beg to say that this happened with me three times this season, with a plant of *Cerise unique*. The upper trusses each had nine or ten pips. I have struck several cuttings of the plant; and if the sport prove permanent, Mr. Beaton will be very welcome to one of them, if he thinks it worth his acceptance.—R. B. P.

COMBINING RANUNCULUS AND VERBENA CULTURE.

WILL it do for me to put my Verbenas into their beds after Ranunculuses are out of blow? There is only one border in my garden in which Ranunculuses blow well, and that border is the one which I kept for Verbenas. For the last two or three years the Verbenas have been quite smothered by the Ranunculuses; and when the latter have been taken up half the Verbenas are killed. The Ranunculuses are raised about the 10th of June. Would that be too late for putting out the plants which are to succeed them—viz., Verbenas, Calceolarias, Lobelias, Senecios, &c.?

[We see no difficulty in the matter if you choose to go to the necessary trouble and labour. In the beginning of May, instead of planting out, turn your Verbenas and Lobelias into at least four-inch pots, and the Calceolarias and Senecios into at least six-inch pots; and then you may clear away your Ranunculuses, turn up, and dig, and air the ground, and plant it according to your fancy from the 15th to the 20th of June. Once obtain the pots, and there will merely be the labour. We mention six-inch pots, especially for Calceolarias; as, though nice plants might be kept in four-inch pots, yet, if the roots were much matted in the pots, the risk would be, that, though the Calceolarias were in full bloom when you turned them out, they would stand still afterwards, and either die or yield you little but leaves in the autumn.]

VINES AND BEDDING PLANTS.

I HAVE only one small greenhouse, which keeps my plants in winter and acts as a vinery in summer. I have had exceedingly fine Grapes for the last two years, and I wish to know whether the plants in winter are likely to spoil the Vines. The Grapes

* *Frumentum*, as we have already said, was a comprehensive term, including especially Wheat and Barley. Varro says that *tritium* is derived from its having to be rubbed out from the ear (*tritum e spicis*).

† *The Orchard House; or the Cultivation of Fruit Trees in pots under glass*. By Thomas Rivers, of the Nurseries, Sawbridgeworth, Herts. Sixth Edition. London: Longmans.

‡ *The Young Lady's Book: A Manual of Elegant Recreations, Arts, Sciences, and Accomplishments*. Edited by Distinguished Professors. With 1200 Woodcuts. London: Henry G. Bohn.

are generally ripe about the 1st of October. I have been recommended to get the *Royal Muscadine* Grape as a better one than the *Sweetwater*. Do you consider it so?

[Under the circumstances named the plants will do no harm whatever to the Vines. In fact, they will be so far in favour of the Vines, that there never will be any danger of the latter being destroyed by severe frost, as we have several times seen. An average temperature of 40° at night will be quite sufficient for bedding plants, with plenty of air on all day when the temperature ranges from that to 45°, and 50°, and onwards. Now such temperature will do nothing to start the Vines prematurely. To have the Grapes ripe about the beginning of October you have evidently used little or no artificial heat beyond what was necessary to preserve your plants, and therefore your plants would not be injured as they would be if you had forced your vinery at all. By April or the end of March you could thin your house by taking the hardiest out first, and placing them where you could give them the protection of mats, calico, or hurdles. If *Calceolarias* were thus removed, and *Verbenas* immediately after, you would have more room for *Geraniums*, *Heliotropes*, &c., keeping the tenderest, as the *Heliotropes*, longest in. By that time you might use your house for starting *Dahlias*, *Marvels of Peru*, &c., only getting them out before the foliage of the Vines would make them tender. Your fine Grapes are a proof that the system will do, and we can see no reason why the Grapes should not be equally good every year. It would be advisable to put as little in the house as possible before the Grapes were cut; after that and the Vines are pruned the house may just as well be filled in the mode stated as stand empty. As to the *Sweetwater* and *Royal Muscadine* Grapes taste must determine. We prefer the *Sweetwater* decidedly; but then, unless considerable care be exercised, the berries on the bunches set very irregularly. The bunches when in bloom should have a dry hand pulled slightly along them, or brushed with a fine camel-hair pencil. Unfortunately, however, in such a late house it would be difficult to help the bunches with other pollen than their own, as no other Vine will then be likely to be in bloom; for in such a house with black Grapes ripe in the end of September, the *Sweetwater* should be ripe from the middle to the end of August. The *Royal Muscadine* is also an early and a good Grape; the berry smaller, but the bunch generally longer and much larger than the *Sweetwater*, and always a very good and regular setter; and therefore, when trouble is to be avoided, we would decidedly prefer it to the *Sweetwater*. It is also a nice sweet Grape, and the seeds look pretty through the thin skin. In a single house of any size it is desirable to have one of these, or both, and also at least one *West's St. Peter's*, as thus the Grape season is prolonged.]

BRUGMANSIAS DYING IN SPRING.

My double white *Brugmansias* always do well till March, then they die. Why should they live through the winter, and then die when the hard weather is over?

[There is a double annual *Brugmansia*, we believe, which might be liable thus to die. The common double one, *Knightii*, with thicker and more acuminate foliage than *suaveolens*, never does die down with us unless it has been frosted, &c., before being housed. We have seen them die down almost to the surface in the spring of the year after keeping green all the winter; because during the latter period the roots had been kept rather dry, which was all very well so long as the dull weather lasted and the sun was low in the horizon, but which did not answer at all when the sun gained strength and brightness, and sucked juices rapidly from the stems. A good watering—a frequent sprinkling from the syringe overhead under such circumstances would have prevented the mischief. We know not if that is the case of our correspondent.]

VERBENA MILDEW.

ONE of the kinds of *Verbenas* I have, *Chauverii*—the best scarlet, I think, for a bed, has all this summer had mould on the leaves, which has increased since the plants have been taken into the house. What should I do to them?

[The chief remedy is dusting with flowers of sulphur. Out of doors we have used the sulphur mixed with soot; but a plant that we find subject to such a pest, both indoors and out of doors, we get rid of altogether, and substitute another of a similar colour in its place. We have had some varieties of

Verbenas that flourished with friends not far off, and yet we never could do anything with them to please us, though for a year or two we obtained fresh healthy cuttings. We do not attempt to explain this; but evidently there was some little thing these varieties wanted which we did not give them, because we did not know what that thing was; and therefore, instead of wasting time and material on them, we just tried another variety that did not seem afflicted with any such malady. A scarlet *Verbena*-bed will only be a scarlet bed, and there are tall and dwarf kinds in plenty to choose from.]

HEATING VINE BORDER.

How soon should the border the Vines are planted in be covered with hot manure?

[Under such circumstances as you have detailed, hot manure will never be wanted for your Vine-border at all. The same spring heat that causes the buds on your Vines to break, will also cause the roots to begin their peculiar functions of absorbing; but if your Vine-roots are at all near the surface, you might, as soon as you choose, place a few inches of long litter or straw over your border, which will prevent the frost penetrating.]

AUTUMN-BEARING RASPBERRIES.

WHICH of the autumn-bearing Raspberries would be likely to do best in the north of Ireland?

[The common double-bearing Raspberry is as good as any, but if two crops are long taken, it is apt to run out. It bears at the usual time on shoots of last season's growth, and again in the autumn on the shoots of the present year's growth. It will produce more plentifully in autumn, if the shoots of this summer's growth are cut down in spring, so that the strength of the stools is thrown into the summer shoots which will produce in autumn. The *Fastloff* and *Red Antwerp* bear well in autumn when treated in a similar way; only after the last year's shoots are cut down at the end of February, the shoots of the summer should have their points nipped out in the middle of June, which encourages the protrusion of side-fruitful-shoots, just similar to those that come from last summer's shoots in the usual way. Where fine crops are wanted continuously in the autumn, it is best thus to sacrifice the first crop, whatever the variety employed.]

EXHIBITING FORCED STRAWBERRIES.

IN order to grow Strawberries for exhibition, is it necessary to thin off all the berries but one or two from the plant?

[No. The forward Strawberries will be sure to take the lead and keep it, but thinning in degree is necessary. Did we want extra fine fruit, we should thin a nice plant of *Keens'* in a six-inch pot, so as to leave about half a dozen of the best fruit; and in the case of *British Queen*, we should thin to allow from three to six to remain. We have at times only left a couple, and had fine fruit, but not greatly superior to what they were when double that quantity was allowed to remain. If our correspondent does not mind the sacrifice and has plenty of room, one fruit on a plant might be tried.]

A BED OF FLOWERING EVERGREENS NEAR A HOUSE.

I SHOULD feel much obliged by your naming a few evergreens to occupy, permanently, an oval bed near my house. I should like them to be of ornamental foliage, bearing flower or berry, dwarf in habit, or of slow growth. I dislike *Laurustinus*, as somewhat common and apt to grow out of shape. American plants would not do, as the soil is not peat, and, moreover, I have already a bed of them in another quarter. The aspect of the bed is open to the south, and, in summer, consequently very warm.—A SUBSCRIBER.

[The nearest that will meet your wishes are the following:—Plant a band eighteen inches wide of the *Daphne cneorum* round the outside of the bed. It grows and blooms just in the way of a dwarf *Verbena*; the colour a rosy purple, and remarkably sweet. Inside that plant another band of *Erica herbacea*, and allow it one foot of space. It is one degree higher than the *Daphne*, and blooms early in the spring, just before the *Daphne*,

The next band of *Skimmia Japonica*, to occupy eighteen inches. This will be in crimson berry all the winter; and for the middle take four or half a dozen of the best Golden-variegated Holly, from a foot to eighteen inches high, and you will have the finest and the most novel bed in that part of the country. Any good, light garden soil will suit them all. All the pruning the bed will need in a year for the first twenty years can be done in fifteen minutes, and the leaves, the habit, and the sizes or styles of growth come in contrast better than those of any other of the same number of plants now in cultivation.]

THE CANARY AND THE BRITISH FINCHES.

(Continued from page 90.)

1st.—THE CROSSBILL (*Loxia curvirostra*).

French, Le Bec croisé. German, Der Kreuzschnabel.



THE Crossbill is only an occasional visitant to this country sometimes appearing in great numbers,—as, for instance, has been recorded in the years 1593, 1791, and 1821. Two couples were also shot in this immediate neighbourhood (Dallington, Sussex), in the autumn of 1850; consequently they are somewhat rare occupants of the aviary; but this year (1859), a great many have been imported into London from Germany, a pair of which are now in my possession. They are docile birds; about the size, or rather stouter, than a Skylark; the beak is thick and large in proportion to the bird: the ends are elongated and curved, crossing each other, from which cause they derive their name. Their heads are thick; their tails and legs rather short; and they climb about their cage, assisting their movements with their beaks somewhat like a Parrot. In colour I should describe them as of a dingy brown, lighter and inclining to grey underneath, the rump feathers yellow, and the feathers about the throat and breast tipped with a glossy, but rather dingy, orange. They feed on canary and hemp seed; and, notwithstanding their awkward-looking beaks, pick up the seeds very dexterously.

Dr. Bechstein, in his "Natural History of the Birds of Germany," says:—"There is great diversity in colour: the young and the females are of a prevailing greyish-brown with some little yellowish colour. That the males at the first moult become red about the head, neck, and breast, like our Linnets; but at their second moult this red plumage is changed for orange." He further states they inhabit the fir and pine forests, on the seed of which trees they feed. They breed between December and April, and build their nests in the tops of the fir trees, forming them of twigs, clay, and moss, with a lining of fine moss. The hen lays from three to five greyish-white eggs, the size of a hazel nut, and marked on the blunt end with a wreath of reddish-brown spots. They sit for fourteen days. The song is composed of several grating and cricking cadences, and has little melody; but such are highly prized by the fancier that utter in a ringing tone the sound "Reiz," or "Kreuz," which is designated the Crossbill's crowing.—B. P. BRENT.

(To be continued.)

SPERGULA PILIFERA.

CAN none of the readers of THE COTTAGE GARDENER give us any information respecting this plant? In the spring we were told it possessed all the good qualities of perfect turf without the labour of mowing. Although I am generally sceptical of anything assuming to be so very much superior to what was in use before it, I am at all times willing to admit merit where due; and this plant's introduction seemed to be so wide a departure from our hitherto-established idea, its failing in some cases to justify the high character it set out with might be reasonably looked for.

But it is only fair to ask, Where has it succeeded? and under what circumstances was it grown? and the other particulars of its management. The latter, I trust, is simple and easy; otherwise adieu to the utility of *Spergula pilifera*—for the old proverb that "Gold may be bought too dear" seems applicable to this plant, if it has to be nursed during the summer months, as weeding, watering, and shading are more expensive operations than mowing. If this plant be not able to take care of itself after being once planted, I fear it can never compete with our long-established grass lawn. Not having had much experience with it myself beyond that of a few plants grown under favourable circumstances, I should like to know from others how it stands the dry hot weather of the dog days, how it answers on slopes facing the south, and if it looks green and fresh on those places and on a dry, gravelly, or stony soil. The rich border of a kitchen garden is not a sufficient trial for it. I should, therefore, wish to have the evidence of those who have grown it under the ordinary circumstances that lawn grass is grown, and how far we may expect it to bear the wear and tear of everyday traffic, not forgetting the wheelbarrow and other rude usage.—J. ROBSON.

[We are very glad that our coadjutor Mr. Robson has sent us the above fishing communication, because it enables us to add that we shall be very much obliged by any of our readers communicating to us the results of their experience with the *Spergula pilifera*. Whether favourable or unfavourable we shall be grateful for the communication, especially if the locality and kind of soil are also particularised. From our own observations we think it is one of the most important gardening improvements of the age; and upon putting the question to Mr. Beaton he replies,—“I have nothing to add to or cancel from what I have said about this substitute for grass. Like all other great discoveries it will have to encounter prejudice, doubts, and fears.” Our pages are open to any communication upon this subject, so important to every gardener.—EDS.]

PAMPAS GRASS.

I PURCHASED a plant of Pampas Grass three years since. It received no particular attention until this spring, when my man gave it a little dressing to see if it would bloom, which it had not hitherto done. It is now a large plant, eighteen inches in diameter, seven feet high, and has had twelve heads of bloom. Ours is one of the highest of the Surrey Hills, and I am fearfully exposed. The south-west wind is dead against us, but we are sheltered a little from the north-east. My soil is nearly all chalk, and very dry.—J. LONG, *White Hill*.

CAPT. WARD, of Calne, informs us that he saw in Cardigan-shire a noble specimen. It is planted on a sheltered lawn with a south aspect.

Soil.—Peat from the Welsh Hills, mixed with one-third of common sand.

Age.—Two years and a half, having been planted in May, 1857 (a very small plant, only two leaves), in a hole four feet deep, and correspondingly broad, filled with the above soil.

Watering.—Once a-week during summer. About eight or nine large waterpots full at a watering.

There were, on October 15th, seventy-five flower-spikes, the tallest being fourteen feet from the ground.

The plant has received no other treatment, and is equal to, if not finer, than the parent plant.

THE MERITS AND DEMERITS OF VARIOUS BEDDING PLANTS.

AUTUMN is once more upon us; and in taking a survey of the various occupants of the parterre during the past summer, it is well to note down the shortcomings as well as the merits of different plants. No one can deny that we live in an age of progress; to say nothing of huge steam ships passing down our rivers capable of conveying to the shores of distant lands the inhabitants of a whole town, and also information of any event being communicated from one side of the land to the other with the rapidity of the lightning's flash, and a thousand other triumphs of the present century.

At the same time gardening has been making rapid progress; during the last few years much has been done, and much more remains to be done. It is but a few years since there were but

three or four varieties of Verbenas. *Tom Thumbs* were almost unknown, and bedding Calceolarias were not thought of; but now, on looking over a nurseryman's list of bedding plants offered for sale I notice almost 500 Calceolarias, Geraniums, and Verbenas enumerated and described as being worthy of a place in the flower garden. But as no amateur who has but a small plot of ground to cultivate can grow so many varieties, and as many new sorts are too expensive for the cottager the first year, the object of these notes is to select a few out of the many brought before the public, and such as we ourselves have proved useful in producing an unrivalled blaze of beauty throughout the summer months.

Foremost, then, among bedding plants are GERANIUMS of the Scarlet class. There is nothing produces a more dazzling effect than a "good bed of Scarlets." *Tom Thumb* has taken the lead in this tribe for a long time, while several new sorts have threatened to consign him to the rubbish-heap; but *Tom* has long remained a favourite with many. There is one, I think, destined to place *Tom* in the background—that is the *Trentham Scarlet*. It is the variety the most extensively used at the Crystal Palace, and what is generally taken by a superficial observer to be *Tom Thumb*. I have grown the *Trentham* these last two years; and each spring I have planted one bed of *Tom Thumb* and one of *Trentham Scarlet* in juxtaposition; and after examining each bed some scores of times, I am of decided opinion that the *Trentham Scarlet* is the most compact in habit, the most brilliant in colour, and the most abundant bloomer.

Next to the Scarlets come the Rose-coloured varieties. Of these the *Trentham Rose* stands the foremost. *Shrubland Pet* is almost of the same shade and colour, but is quite of different habit, and belongs to another class. In highly cultivated soils the latter runs too much to foliage and is very sparing of bloom. The only way I have found it to succeed well is by either planting it in poor, shallow soil, or plunging it in the pots.

Of Pink-flowered Geraniums *Tom Thumb's Bride* is the best I know. It is far superior to *Lucia rosea*, as it is not so rambling in habit and a more abundant bloomer. This variety is indispensable in the flower garden, and, viewed at a distance, it produces a most charming effect.

White Geraniums are a class in which there is great room for improvement. *Boule de Nieve* is the best I have grown, and this is of clumsy stubby growth, rather scarce of flowers, and at the best but a dull dingy colour.

Ivy-leaved Geraniums, both pink and crimson, are useful in the flower garden. The *White Ivy-leaf* is apt to run to wood either on a rich soil or in a dripping season. The *Pink* and *Crimson* are invaluable, not only planted in beds *en masse*, but also for edgings and other purposes. The best way I have found to plant the *Pink* and *Crimson Ivy-leaf* has been to plant the Geraniums in circles of each colour, and between each plant to put two or three plants of *Phlox Drummondii*. Let each be regularly trained down, and the effect will be very striking.

Variiegated Geraniums.—No class of plants has improved so much these last few years as variegated Geraniums; and even these last two years there have been several varieties sent out, which, I have no doubt, will prove useful. For a long time *Flower of the Day* had the lead, but it has a disagreeable way of curling back its leaves: there is also a sulphur tinge produced in the leaves, while the flowers are pale in colour and scantily produced. *Alma* comes next to *Flower of the Day*, and is a step in the right direction—it is a decided improvement in both foliage and bloom. *Mangles' Variegated* is one of the best we have either to make a bed or to be used for edging round a bed on turf. Being a free grower it soon fills its allotted space, and looks well from the moment it is planted, and neither heavy rains nor hot weather deprives it of its beauty. *Brilliant* is invaluable as a bedder. In the more northern districts, on damp soils, it loses its variegated foliage, and is quite as green as *Tom Thumb*; but in the more southern counties, on a dryer soil, it is a fine variegated variety of good habit, and producing an abundance of deep scarlet flowers. *Brilliant* answers well either in a bed edged with *Purple King Verbena* or *Blue Lobelia*, or for an inner row in ribbon planting. *Flower of the Day* may be used the same way as *Brilliant*; and I think in ribbon planting it is more effective. It does not answer well for an edging; but on a large bed with Scarlets in the centre, then a ring of *Flower of the Day*, finally edged with *Blue Lobelia*, the effect is good.

CALCEOLARIAS.—The summers of 1857 and 1858 were both trying seasons for this favourite plant, especially in very dry soils, and it was almost feared we should be obliged to extirpate it from the flower garden; but the present season it has fully

proved itself to be free from any constitutional debility, and has been equal to any former occasion. Those which I have found to fail have been the *Kentish Hero* and *Sultan*. Of those which have proved the best and longest display of bloom have been *Aurea floribunda*, *Integrifolia*, *Sulphurea splendens* and *Viscosissima*. *Amplexicaulis* is very good, but is often late before it comes into bloom.

VERBENAS.—This useful class of plants presents a vast difference in both habit and colour. Instead of the catalogues of nurserymen presenting us with three or four sorts, we have now as many hundreds, and these all described as being distinct in colour and habit. Where there are only a few beds to plant, and many varieties possessed, any attempt to arrange the colours is useless. When the varieties are of the same habit I prefer to plant them on the mixed system. These last three years I have tried them both mixed and of the same variety; and I am inclined to think that Verbenas judiciously mixed produce the best effect. Last year I grew all the sorts I could lay hold of: but last autumn, when making cuttings for this year's display, after carefully examining each sort, I reduced them to fourteen or sixteen sorts; and of them I would recommend of scarlets—*Brilliant de Vaise*, *Defiance*, *Géant des Batailles*, *Mrs. Woodroffe*, and *Lord Raglan*. Of Whites—*Smith's Queen* and *Mrs. Holford*. Of Rosy purple—*Victory*. Of Pinks—*Magnificent*. And of Purples—*André* and *Purple King*: the latter is by far the best.

PETUNIAS.—These, generally, have been good this season, but I think not quite so good as the two preceding summers. It often happens that those sorts recommended by nurserymen as being worthy of cultivation are not the sorts best adapted to make a grand display in the flower garden, as many of the double varieties so much puffed up when planted out produce nothing but a mass of rank foliage. What we want in this class, is something to stand the sun and rain and produce an abundance of bloom. The best Petunia I know, and which has often been highly spoken of by Mr. Beaton, and deserves all that has been said in its favour, is *Magna coccinea*, a large crimson purple, producing flowers five inches across. It stands the sun well, and is an abundant bloomer, but in consequence of the flowers being so large they are spoiled by heavy rains. It ought to be in every collection, and is very effective in beds.

PHLOX DRUMMONDI.—This plant is not well adapted for a bed by itself; it, however, comes in very well for the mixed border, or intermixed with *Ivy-leaved* Geraniums as above described.

ALYSSUM VARIEGATUM.—This charming plant is, without exception, one of the most useful plants in the flower garden. Nothing can be more effective as an edging round a bed of scarlet Geraniums on turf; being of free growing habit it soon fills its allotted space, and neither sun nor rain affects it. It looks well when all other plants fade, and remains ornamental until destroyed by frost.

AGERATUM.—This is a valuable bedder, as we have not the same colour in any other plant. It generally produces flowers abundantly; but with me these last two years, about the middle of September, its foliage has turned of a nasty brown colour, which has quite spoiled its appearance. The variegated variety promises to be useful, but is more sparing of flower.

HELIOTROPES.—These are unsuited, in my opinion, for bedding out in the flower garden, on account of the absence of any decided colour. It may be used for pincushion-beds, or round standard Roses. It is generally admired by ladies from the delightful odour it exhales, and is useful for bouquets.

LOBELIAS.—These low-growing plants are exquisitely beautiful for small beds, or for edging round large beds. I have always found the old *Erinus* the most useful, for its erect, compact, free-blooming habits; but there is a new sort out called *Speciosa*. I have not tested it by the side of *Erinus*, but, from what I have seen, it is likely to prove useful.

TROPÆOLUM LOBBIANUM ELEGANS.—This dwarf-growing, ever-blooming plant is at the present moment producing the most gorgeous display of bloom that can be conceived. It stands alike both sun and rain, and is a mass of bloom from the moment it is planted to the time it is destroyed by frost. In order to keep it in a healthy state it ought to have the seeds picked off: but it does not come true from seeds. It ought, therefore, to be always propagated from cuttings. Much has been written in its favour in the pages of THE COTTAGE GARDENER, but no encomium bestowed upon it is greater than it deserves. I shall, therefore, conclude these rambling notes by pronouncing it one of the very best bedding plants we possess.—QUINTIN READ, *Gravesend, Kent*.

CRYSTAL PALACE CHRYSANTHEMUM SHOW.

NOVEMBER 9TH.

THIS was a large show for a Lord Mayor's day, and for so early a period to see the full force of Chrysanthemums. Nine years out of ten it is on to the 20th of the month before the conservatories in the country are in full blaze with Chrysanthemums; and this year they are later than usual about London. What the country party, therefore, will learn most from this report is the names of the best earliest kinds to push on for the first filling up in the greenhouse or conservatory.

The way to push them is to have these, the earliest kinds, potted for the last time ten days or a fortnight earlier than the late kinds; and that involves the last stopping also to be seen to as much in advance of the later sorts.

The newest feature in their culture, and showing off at this Exhibition, was the abundance of standard Pompones, and a very fair beginning of the standarding of the tall old kinds. They are indispensable in showing off large collections of any kinds of flowering plants, save Orchids. But why not have standard Orchids as well as standard Chrysanthemums? Surely they could be grafted on purpose; while all the Pompones and their allies need merely be disbudded at the first making of the cuttings, and the process continued up to half-standard lengths of thirty inches or thereabouts to upwards of three feet for full standards. The half-standard for most of the Pompones, and the full-measure height for the older and large kinds. Then half the world need be told that standards in this family will live and grow, increase in size and substance, just as long and as much in proportion as standard and half-standard Roses. The oldest standard Rose in this country is now not more in years than the first Chrysanthemum that was introduced might be if it had been then made into a standard. But the oldest Chrysanthemum standard I know of is not yet over seven years of age, nor yet much stouter than a fair walking-stick: the wood of it, however, is hard enough to make a handle to a pruning-knife; and it is grafted with different kinds, to finish up and prove the value of an experiment which was suggested by the late Lady Gordon Cumming to her gardener, Mr. Temple, in 1825, when I was a lad learning crossing under them. The two were then about the best scientific and practical hands in these parts; and I warrant the second half of the experiment is in the best practical hands in England. The story was told and the form was suggested in THE COTTAGE GARDENER some six or seven years back; and if I live till the practice is determined one way or other, it shall not be fly-flapped or be put under a bushel—but I have neither hand nor foot in that experiment myself. But now, seeing that Mr. Eyles and his employers have wisely undertaken to encourage the culture of standard Chrysanthemums, I felt that a new duty was thus thrust upon your humble servant in anticipation of "Answers to Correspondents." The first batch of letters to our office, 162, Fleet Street, London, after reading about this Show, would be full of blooms—no, not blooms, but questions as to how and in what way standards are so made? what the best sorts for the purpose? will they be in the fashion? your own ideas of them? and all about them, and so forth.

Well, any dress that was common in 1825 is now quite just and lawful for introduction as a new fashion. To dress flowers differs nothing from dressing in the fashion; and this flower is made, as it were, on purpose for dressing—it has been dressed in the highest style ever since it came in fashion. There need be no queries, therefore, on that score. And as to the ideas of THE COTTAGE GARDENER on fancy standards of all kinds, in doors and out, why, from its very birth it was the very aim it was pointing to. Moreover, the downfall of the Chiswick Gardens began the slide that very day on which the

Doctor ran all over the Garden after Mr. Appleby, to give it him for showing his maiden standards of *Deutzia gracilis*—his "flyflappers" were the scientifics on that memorable occasion: therefore nothing is to be feared from that quarter. Besides, all the great people, and more especially the ladies, delight in fancy standards to take off the sameness of the surface of their conservatories.

All that being settled, the next step is about the best kinds for standards; and here it is an easy rise of six inches, or less, or more, to suit all ages, and lengths of legs and purses. The reason why one kind is better for a standard than another will be found in the habits of the kinds. Those with long and loose branches are not good for standards. Those with weak, slender shoots, and such as have the side-branches of strong leaders not up to a proportionate strength, and all straggling growers must be avoided, except by those who take such delight to spend days and weeks on the training and on the moulding of their plants, as the Chinese take in torturing their women to improve the shape of their feet to their own standard of beauty. There is not one farthing's worth of difference between the training of a Chinese woman and the training of a Chinese Chrysanthemum, for both are equally admired by those who do the work; and if we work so many of ours into half and full standards, have we not just the same right to enjoy our labours, and to admire them, without being called over the coals by any one? Of course we have; and the Pompones being more stiff, more branchy, and less given to a rambling style of growth, must be the first to try our hands on. After them, we shall select the nearest to them in habit, with the best flowers and best colours from among the large kinds; and if we do them well or middling, there is the Crystal Palace Show to take us in hand, and be our pattern and our guide till we are able to excel, and win the prizes.

Almost all Pompones can be trained into standards, but the following are the easiest to do, and the best looking when done—*Andromeda*, *Miss Talfourd*, *Adonis*, *Berrol*, *Bijou de l'Horticulteur*, *Dureflet*, *Hélène*, *Escarboucle*, *Mustapha*, *Bob*, *Brilliant*, *Requiqui*, *Trophe*, *Cedo Nulli*, *Mr. Astie*, and *President Morel*. And the best of the large Chrysanthemums, for making standards of, are—*Chevalier Dumége*, the brightest yellow and the best habit, for a standard, of all the family; *Julia Largravare*, quite new, and velvety crimson; *Cassandra*, a pure white, very early, and a profuse bloomer; *Sulphurea superba*; *Albin*, the great favourite dark violet kind; *Cassy*, with its orange and rose; *Trilby*, with its *pudibundus* blushes of maiden purity; and *Gluck*, with its immense golden turbans of tasselled petals. A short list, certainly, but a sweet and practically scientific one, for which I am indebted to the ripest practice represented at this Show.

I never could see any use in going to a show, and then sitting down and writing to one's friends that so many things were shown in so many ways. Without going the length of value for value, I like to have something of some value for my money, to *learn* at shows, and to *teach* what I have been taught, and what has fallen to my net by rod, hook or crook, and by hearsay.

Well, then, this was a most suggestive Show; people who were loggerheaded last year were then in the best of feather; bygonies were bygonies, for the use of the great family. There was also a considerable deal of more polish, more taste, and better spelling than formerly; and, best of all, there was no trick upon travellers attempted, as far as I could judge. *General Havelock* being used as a new name to an old kind, and three or four hitches in the foreign spelling, were frills to what used to be heavy borders. *Madam Mellez* for *Miellez*, *Marshal* for *Maréchal*, and a few others of that stamp; but some of our best Rose growers often make such lapses. Just look at how they spell the *Barons* and their

wives before you cast blame on the genders of the *Chrysanthemum* growers.

The best collection of trained Pompones, six in number, was from Mr. Wiggins, gardener to E. Beck, Esq., as usual, and they certainly were most magnificently done, and no mistake. They were over four feet across, every one of them, and as flat on the surface as a dining-table, and in one sheet of even-surface bloom, and very well set for effect. Indeed, all the pot plants are now set far better than was lately the case; but the setting of cut flowers, in all branches of floristry, set the rules for effect at utter defiance. The kinds were—*Bob*, *Cedo Nulli*, *Hélène*, *Ste. Thais*, *Dureflet*, and *Général Canrobert*. Also, single specimens of *Hélène*, *Cedo Nulli*, and *Aurora Borealis*, which had first prizes each, and richly deserved them.

The second-prize collection was from Mr. Ward, gardener to W. Fowler, Esq., Tottenham Green, and they were neck and neck with the first, and, of course, the first had the longest neck, and won the day. Mr. Ward had *Cedo Nulli*, *Mustapha*, *Trophe*, *Requiqui*, *Général Canrobert*, and *Dureflet*. The latter was longer open than Mr. Wiggins's *Dureflet*, and all the gayer for that. This lot was admirably well set; for it is very difficult to set these and *Pelargoniums* off on two or three stages one above the other.

A third prize to Mr. Candy, gardener to E. Saunderson, Esq., Wimbledon Park. These also were of enormous size, and splendidly trained. *Bob*, *Brilliant*, *Hélène*, *Cedo Nulli*, and *Requiqui* were magnificent.

Over and above these there were from twenty to thirty yards of other flat-trained Pompones, the larger number of which were the property of the Crystal Palace Company. But it is just "love's labour lost" for the Company to train down squat plants at all; there is nothing to learn on that plan, or to teach either, which may not be learned better from such scientific hands as are at the work already. The collections of the Crystal Palace ran over three hundred feet, or more, of triple stages, and at every length of ten feet, in the centre row, stood up a standard plant. The surface below the standards being of large kinds and Pompones mixed, and on moderate plants partially trained, as for a country conservatory. The whole effect was grand, novel, and picturesque. There were also some few pyramids in their training, and there was a perfect pyramid of *Cedo Nulli*, from three to four feet high, and under two feet across the bottom on the top of the pot, from Mr. W. Morgan, Lincolns-in-Fields, in the heart of London, which had, and deserved, a first prize. Mr. Morgan had also an elegant match pair of standards of *Vesta*.

For single specimens of Pompones in eight-inch pots Mr. Shrimpton, gardener to J. Doxat, Esq., had the first prize with a *Cedo Nulli*. Mr. George, Hope Lane, had a first prize for a single specimen of *Christine*, a fine bush; he had also a second prize in six large kinds in eleven-inch pots, Mr. Oubridge being first in that class: the latter had *Defiance*, *Progne* (fine crimson), *Christine*, *Pilot*, *Vesta*, and *Annie Salter*. Mr. George had *Queen of England*, *Aregina*, *Plutus*, *Annie Salter*, *Madam Camerson*, and *Christine*. Mr. Hatch, gardener to P. Johnson, Esq., Stoke Newington, had a third prize with *Chevalier Dumége*, *Madam Camerson*, *Insigne* (not Havelock), *Christine*, *Annie Salter*, and another.

Mr. Foster, of Shacklewell, in the nursery class, competed here with Mr. Merry, up at Stamford Hill; a good race in a good cause. Mr. Merry was the second best lawyer on my side when they had the row about "that ther gent" long ago. Mr. Forsyth first with *Annie Salter*, *Defiance*, *Pilot*, *Vesta*, *Auguste Mie*, and some French general. Mr. Merry—*Voltaire*, *Chevalier Dumége*, *Christine*, and *Beauté du Nord*, a half-large dark-red kind; and a fourth prize was given to Mr. Bennet, of Upper Tulse Hill, for another six, which were too long in the legs for the present day. But Mr. Oubridge

and Mr. Ward had a second and third prize for a single *Phidias* and a single *Pilot*, as fine specimens of skill in growing.

But the grand battle was with the cut flowers, in the highest style of size, growth, and dressing. The day opened with 24-pounders; and Arthur Wortley, Esq., of Stoke Newington, pounded away with his twenty-four "cuts" as if at the rifle-ground at the bottom of the garden. Beautiful they were indeed, and so were most of them. He and they had them in three rows. Now mark these as the best of all for cut blooms, as the Newingtonians beat the globe in that race. He began with *Dupont de l'Eure*, *Plutus*, *Themis*, *Aristée*, *Defiance*, *Alfred Salter*, *Hermione*, *Pio Nono*, *Queen of England*, *Madame Andry*, *Glory* (a fine new one), *Maréchal Duroc*, (ditto), *Nonpareil*, *Curtius Quintus*, *Aimée Feriere*, *Christophe Colomb*, *Yellow Formosum*, *Arc en Ciel*, *Princess Maria*, *Formosum*, *Général Negrier*, *Lysias*, and *Goliath*, the largest of all the whites.

The second prize for twenty-four was well and ably contested by E. Saunderson, Esq., Regent's Park, who began with *Madame Miellez*, and went on with *Arc en Ciel*, *Beauty*, *Pio Nono*, *Plutus*, *Madame Le Bois*, *Campestronii*, *Christophe Colomb*, *Themis*, *Dupont de l'Eure*, *Trilby*, *Miss Kate*, *Lysias*, *Nonpareil*, *Insigne*, *Gem*, *Aregina*, *Anaxo*, *Madame Andry*, *Cassy*, *Hermione*, *Goliath*, and *Raymond*. Mr. Oubridge and Mr. Ward were third and fourth.

Among the nurserymen, Mr. Bird was triumphantly first; Mr. Merry up after him; then Mr. Wilkinson and Mr. Forsyth; but it will suffice to give the names from Mr. Bird, he being the great bird of Jove in that line in the east. He had *Princess Maria*, *Pictorum Roseum*, *Beauty*, *Themis*, *Aregina*, *Novelty*, *Anaxo*, *Nonpareil*, *Madame Andry*, *Plutus*, *Christophe Colomb*, *Virgil*, *Maréchal Duroc*, *Hermione*, *Raymond*, *Goliath*, *Formosa*, *Duke*, *Yellow Formosa*, *Pio Nono*, *Yellow Perfection*, *Albin*, *Trilby*, and *Dupont de l'Eure*; and in another place he set up a gratuitous contribution, ten yards long and about eighteen inches wide, in capital letters made of large *Chrysanthemums* in cut blooms. The same letters were also put down in chalk—*GOD PROTECT THE SLAVE*—the best telling thing I ever saw against the way florists persist in placing cut blooms against the rules of effect. He also had collections of *Themis*, *Nonpareil*, and *Plutus*; also smaller collections of mixed kinds, and a bunch of single shoots, or tops of whole plants, with one bloom on each, to show how large the flowers come when one only is allowed. Just in the opposite way, two plants from Mr. Hatch, gardener to P. Johnson, Esq., Stoke Newington, were to show how large the plants may be grown, and how many hundreds of bloom each will carry. One plant of *Adonis* was six feet by eight feet, and one of *Christine* was little less; and both had first prizes. Mr. Hatch was well up in other steps lower down.

In the class of twelve cut blooms, Mr. Saunderson was first; Mr. Oubridge second; Mr. Arthur Wortley third; and Mr. Saunderson fourth; and in sixes, Mr. Saunderson was first and fourth; Mr. Arthur Wortley second; Mr. George third; and an extra to Mr. Monk, gardener to J. Heath, Esq., Balham Hill.

Mr. Salter exhibited "seedlings and other new kinds, raised by Mr. Clark, natural flowers, not dressed." Four or five of these kinds were raised by Mr. Clark. They were named *Alarm*, *General Hardinge*, *Favourite*, *Wonderful*, the best crimson yet raised; *Belmont* and *Arthur Wortley*, a globular bronze; *Bouquet des Fleurs*, a large, flat, Indian-red, tipped with gold; *Emperor*, a large, Anemone, lilac-blush; and *Mrs. W. Holborn*, named after "Annie Salter," who has just changed her name in matrimonial alliance with the lucky W. Holborn, Esq. This is a white, incurved flower of great beauty.

In new Pompones, Mr. Salter exhibited *Christiana*, *Augusta*, *Miranda*, *Destruction*, *Snow Flake*, *Emily*, and *Zara*, kinds which I must examine some day.

There was a fine collection of twenty-four kinds of

Pompones, in cut bunches, from Mr. George, Hanger Lane, Stamford Hill. They were not named, but the more popular sorts were conspicuous among them, such as *Bob*, *Brilliant*, *Ste. Thais*, *Alexander Bell*, *Hélène*, *Bijou de l'Horticulteur*, *Trophe*, *Requiqui*, *Cedo Nulli*, and so forth.

Many other collections made up the grand show, at which all parties seemed well pleased; and there was a design for a Pompon-bed in the centre of the great transept, with which I was particularly taken on account of the artistic style of getting the colours into the best effect, and to show the way of grouping round-headed plants in the "natural way" with standards, in a richly artistic basket without a bottom. That was the best thing that has yet been done in the Pompones, and the credit of it belongs to the Crystal Palace people. The basket was eight feet in diameter, with a high handle bound round with cable, and covered with Ivy, had the times permitted; in the very centre stood a standard of *Aigle d'Or*, and round it, but not near it, a match pair of *Brilliant*, in standards, and another match pair of *Bob*, *Président Decaisne* (dwarf), in the centre; under, *Aigle d'Or*, and rounded with the next shade of light pink, after *Madame Rousselon*, but not her madamship; and outside a broad band of yellow slightly bronzed—a trick which improves all yellow *Calceolaria*-beds. The clear yellow was of *Aigle d'Or* and *Drin Drin*, and the bronze from the tipped variety of *Sacramento*. These are the things to pay one for going to such exhibitions. Anything new in good taste is sure to tell on the visitors in the long run.

In the afternoon I took a run all over the garden to see what the frost had done, and I did not see a leaf hurt. *Veronica speciosa*, in full bloom all over the borders, up and down; and *salicifolia* in thousands of bloom-buds,—both apparently established as hardy evergreens there. Swans and ducks were on the great lakes, and sharpshooters were at their rifles in their practising-ground, firing away at three-halfpence per shot, per long range, and in proportion for shorter distances. The lakes round the beasts before the flood were alive with white ducks, and happy children feeding them and making them run with all their might to catch plum cakes and biscuits—the first time I ever saw ducks galloping. D. BEATON.

VARIETIES.

ARCTIC OCEAN—The principal production of the Arctic Ocean has been the whale. This valuable fish abounds chiefly where the current is strongest—near the respective confluences, as it were, of the Arctic Ocean with the Atlantic and the Pacific. The whale-fisheries on the west of Spitzbergen, and on both sides of Greenland, scarcely need to be mentioned further. But it may not be generally known, that, according to official returns as quoted by Admiral Beechey, the Americans had, in two years, drawn more than 8,000,000 of dollars, or upwards of £1,600,000 sterling, from the whale-fishery of Behring Strait alone. On the side of East Siberia, however, the Arctic Ocean produces a more remarkable article of traffic. Here are found, in the greatest abundance, the bones of the mammoth. Spring after spring, the alluvial banks of the lakes and rivers crumbling under the thaw, give up, as it were, their dead; while the islands lying off the Yana, and even the depths of the sea itself, literally teem with these mysterious memorials of antiquity. The American half of the Arctic Ocean, if it cannot boast of fossil ivory, presents something still more difficult perhaps to be explained. In lat. 74° 25', and lat. 76° 15' respectively, Captain M'Clure and Lieutenant Meham discovered large deposits of trees, apparently indigenous, of considerable size. Writing of Banks' Island, M'Clure has the following passages: 'From the summit of these hills, which are 300 feet high, to their base, abundance of wood is to be found, and in many places layers of trees are visible, some protruding twelve or fourteen feet, and so firm that several people may jump on them without their breaking: the largest trunk yet found measured one foot seven inches in diameter'—equivalent in girth to about five feet. Again, 'I entered a ravine some miles inland, and found the north side of it, for a depth of

forty feet, composed of one mass of wood. Some of it was petrefied, the remainder very rotten, and worthless even for burning.' Writing of Prince Patrick Island, Meham has the following passage: 'Discovered buried in the east bank of the ravine, and protruding about eight feet, a tree of considerable size. During the afternoon I found several others of a similar kind: circumference of first and second tree seen, three feet; of another, two feet ten inches. From the perfect state of the bark, and the distance of the trees from the sea, there can be but little doubt that they grew originally in this country. I sawed one through: it appeared very close-grained, and was so immensely heavy that we could carry but little of it away.'—(*Chambers's Encyclopædia*.)

AFRICAN SNAKES.—While at tea the conversation turned upon snakes, and our friends told us they were very numerous; that recently the wife of one of the people, awaking in the night, felt something on her arm, which she took hold of, thinking it was the infant who slept in the same bed, but found it was a large snake, which had crept between her and the child. It bit her thumb, but the bite did not prove poisonous. They also confirmed the opinion that the bones of certain snakes are poisonous; stating that, during the late war, a Fingoe when on patrol trod on the bones of a serpent, and was pierced in the foot. His foot swelled, then his leg, and afterwards his whole body, and he died in two months. In this case the wound might have been inflicted by a living snake, but the general opinion is as above stated. In a country abounding, as Africa does, with serpents, I expected to hear many anecdotes respecting them; and conversing on one occasion with Mr. Pullen, a farmer who has lived many years in the country, and seems to have paid rather more than usual attention to this species of reptile, he said he once saw a mouse running in a field, and that, coming in sight of a snake, though at a considerable distance, it instantly stopped. The snake fixed its eye on the mouse, which then crept slowly towards the snake, and, as it approached nearer, trembled and shrieked most piteously, but still kept approaching until quite close, when it seemed to become prostrate, and the snake then devoured it. On another occasion he had watched a snake capture a mouse in the same manner; but, as it was retreating, he followed, and struck it on the back with a stick, when it opened its mouth, and the mouse, escaping, ran for some distance, then fell down, but after a minute recovered and ran away. Another time he said he watched a snake in the water which had fixed its eye upon a frog sitting amongst the grass on the bank. The frog, though greatly alarmed, seemed unable to stir, until Mr. Pullen gradually pushed a rush growing near, so that it intervened between the eye of the snake and its intended victim, when the frog, as if suddenly liberated, darted away. Mr. Pullen's ideas were in accordance with the popular notion that the snake has the power of exercising some mesmeric or other influence through the steady fixing of its eye, and that whatever intercepts this gaze breaks, as it were, the charm, and sets the prisoner free.—(*Ellis's Madagascar*.)

TO CORRESPONDENTS.

MUSHROOM-BED (*A. K.*).—You may commence forcing now in your frame, especially if you can construct the bed under a shed.

ASPARAGUS-BED (*C. G. Read*).—Your Asparagus-bed having sunk down to the level of the path is no misfortune; and if it sink down below the path all the better, for it will be a basin which you can fill with house sewage, or other liquid manure—the best of applications to Asparagus. Salt is not indispensable for the cultivation of this vegetable; and as your soil is clayey, we would not apply it, except dissolved in the liquid manure. Salt spread over the surface of a clay soil does cause it to cake.

STOVE FOR SMALL GREENHOUSE (*A. R.*).—No stove, nor any kind of fuel, without a tube to carry off the smoke or fumes is admissible among plants. See the subject fully discussed in our No. 522.

SKELETON HOTBED FRAME (*A Subscriber*).—Covered with water-proof felt it will do to force Mushrooms under.

BROWN BLOTCHES ON CAMELLIA LEAVES (*A Constant Reader*).—There are several causes that will produce such spots, increasing in size, on Camellia leaves. If the plants stood in a house with an iron roof, and that roof has rusted, and the rust along with condensed drops of water fell on the leaves, and remained some time there, and more especially if the sun shone bright before the moisture was evaporated. Again, if there were spots on the glass, so as to concentrate the sun's rays upon parts of the foliage. In such a case, spots will be burned on hard, leathery leaves like those of the Camellia, when more flimsy leaves would escape. Again, if the house is kept so long shut in the morning that the sun beats powerfully upon it before the leaves are dry, the moisture in the house and on the leaves together produces scalding. We think yours have been done by bad glass, or iron droppings. We are glad the plants are full of blossoms, and you must just make the most of them. No appliance will ever succeed in restoring to green vigour the leaves thus affected. They will all fall during the winter and spring. At least, they will do so when you

put the plants into a close, moist atmosphere for a short time after the blossoms are gone, to encourage fresh growth. The young foliage made under such circumstances, and free from the mischances alluded to above, will come green and luxuriant, and free from spots. Where there is danger, or the least likelihood to be scorched in April or May, it would be advisable to shade the glass.

NOTES FOR A. B. C.—*Cupressus strigilosa* is one degree less hardy than common Fuchsias, and one of the easiest plants in the world to manage like a Fuchsia, for beds, and to winter half dry. All true *Achimenes* die down in the autumn, like yours, and like Tulips in May and June; but the "roots" or bulbs never die in the autumn, only in winter, from damp or too much cold, or from not being ripe. Any good-sized ripe tuber, or bulb, or "root," of an *Achimenes* will live all the winter in the small ball of earth it grew in, if the place is quite dry, and no colder than 40°. All these failures come from half-ripe roots, and from half-starved and badly-managed plants grown in too low an atmosphere and too late in the spring. To keep greenhouse plants at 60° in winter is sheer folly, even with all the air the winds can blow; at 50° it would be only madness; and at 45° verging upon daft. No wonder your *Achimenes* go wrong. A healthy *Daphne*, and a well-managed *Camellia*, will take no harm from cutting off short sprigs, or pieces of the branches with the flowers; but if either of them are badly off at the roots, not one particle of the wood must be taken with the flowers. Then the flowers must be tied upon skewers, as they do them in Covent Garden. Your *Daphnes* and *Camellias* should not be over 40°, and seldom that, in winter, till they recover. You must shake most of the present soil from the roots in March, and put them into smaller pots, and in fresh loamy soil, with a little peat and sand. Some of your pots must be twice too big for the roots of your plants. The cheapest and best French and Fancy *Geraniums* we give several lists of every season, as regular as the sun comes round, from the public exhibitions of them. The best variegated bedding *Geraniums* for you are—*Flower of the Day*, *Brilliant*, *Alma*, *Countess of Warwick*, and *Mrs. Lenox*.

BARK-BED (A. C.).—If for merely plunging pots, in eighteen inches are enough; if for giving heat by fermentation, three feet are not too much.

TROPEOLUM JARRATTII AND TROPEOLUM TRICOLOR GRANDIFLORUM (B. R.).—Treat them exactly alike. Pot the bulbs every year in the last week of September, and let them go dry for the summer after flowering and seeding, and never force them or put them in a warmer place than would do for a *Tom Thumb* *Geranium*; not even now, although they are so far behind the right time of potting. Your best plan, to gain time, will be to put them in the flowering-pots at once, and only half fill the pots at first, and "earth them up" by degrees, as we say for Potatoes, as the stems grow, and you will be up with the earliest of them yet.

PRESERVING SEA WATER (W. H., Exeter).—It will continue sweet longest by being in an open jar, and poured backwards and forwards daily so as to expose it to the air thoroughly. We have known it thus preserved in a wholesome state for the marine aquarium for full a month.

NAMES OF FERNS (J. F. A.).—1. *Athyrium filix-femina* v. *crispum*. 2. *Dictyopteris attenuata*. 3. *Adiantum assimile*. 4. *Pteris cretica*. 5. *Notholaena distans*. 6. *Pteris hastata* v. *macrophylla*. 7. *Onychium lucidum*. 8. *Pleopeltis Bellardieri*. 9. *Campyloneurum Phyllitidis*. Thanks for the promise of *Cyclamen vernum*. (J. Westlake).—1 and 2 appear to be both *Polystichum aculeatum* v. *lobatum*. 3. *Lastrea filix-mas* v. *incisa*. 4. *Lastrea filix-mas*. But such fragments, especially the tops of fronds, can never be named satisfactorily. (W. Gater).—Yours are—No. 1. *Platyloma cordifolia*. No. 2 comes nearer to *Lastrea cristata* than anything else; but we are not quite certain from such small specimens.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

NOVEMBER 18th and 19th. WEST OF SCOTLAND ORNITHOLOGICAL ASSOCIATION (Pigeons and Canary Birds). Sec., Mr. T. Buchanan, 74, Argyle Street, Glasgow. Entries close the 7th of November.

NOVEMBER 19th to 23rd. CRYSTAL PALACE. (Canaries and British and Foreign Cage Birds). Sec., Mr. W. Houghton.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. Sec., Mr. J. Morgan, Bingley Hall, Birmingham.

NOVEMBER 28th. STEEL BANK, SHEFFIELD (Single Cocks). Sec., Mr. F. Wragg, Steel Bank, Sheffield. Entries close the 26th of November.

DECEMBER 28th and 29th. SHEFFIELD AND HALLAMSHIRE (Fancy Pigeons). Sec., Mr. Inman New, Sheffield. Entries close December 12th.

DECEMBER 28th and 29th. POULTON-LE-FYLDE. Sec., Mr. J. S. Butler.

JANUARY 7th, 1860. BRADFORD. (Single Cock Show.) Secs., Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford.

JANUARY 31st and FEBRUARY 1st and 2nd. CHESTERFIELD AND SCARSDALE. Hon. Secs., Mr. J. Charlesworth, and Mr. T. P. Wood, jun.

FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). Sec., Mr. W. Houghton. Entries close Jan. 14th.

N.B.—Secretaries will oblige us by sending early copies of their lists.

HOW TO ATTAIN DESIRED POINTS OF EXCELLENCE.

FOLLOWING our remarks of last week with regard to breeding for the attainment of particular shape or feather, we will give some details of the manner in which it may be done. It will be seen that the possession of one bird of either sex among those that will breed in this country will enable the owner, if he is patient and will take the trouble, to perpetuate the race. This was done most successfully by the late Earl of Derby with the beautiful *Versicolor* Pheasant; and was begun, but not carried out, by the late Lord Hardinge with some Pheasants he brought from the

Himalayas. Of all sorts of Pheasants, and of Jungle fowls brought to this country, the cocks only arrive alive, because they are packed with hens in small cages, and they always kill them. If those who are disposed to try to import them will have the birds cooped separately, they will get them over alive.

The male bird of whatever sort he may be is put with a female of this country that most nearly resembles him; the next year he is put to a hen the produce of the first; the third year he is mated to the produce of the second, and the fourth to the third. By this time the appearance of the cross has almost or quite disappeared, and the produce may be freely mated together. There will at times be vindication of original rules, and birds will throw back. For this reason the original cock should be kept and used as long as possible.

Now, as this is true of Pheasants, it is equally so of fowls. If Cochins are become faulty in one point—say they are coarse about the head and comb—then choose a cock of undoubted merit in that particular, and mate him with the least faulty hen. The improvement will be at once perceptible; but if the cock be then mated with his daughter, it will be seen that his points are carried out in his progeny. Of course, the same process may be adopted for feather. It would be more frequently done but for the time and care that are required. Where perfection is sought in this, like everything else, it is the reward of those only who will strive for it. Success is not doubtful, as the process we have named has been often proved a certainty.

SPANISH CHICKENS AND THEIR AILMENTS.

I FIND that among my Spanish chickens, and also those of other breeders in this neighbourhood, the stags' tails all turn on one side, although first-class birds. Can you or any of your readers account for this?

Also, can you tell me the time when well-bred Spanish chickens ought to begin to show the white face, and to lay? Also, if those fowls that have not yet begun to moult are liable to suffer more than usual?

I have a Spanish pullet that has a kind of gathering in one eye. Is there any remedy?—W. R. E.

[Wry tails are caused by crooked backs or spines. When one fowl in a yard has it, it may be the result of accidental injury; but where it is the rule, you must look to the breed and parents. This, in common with most defects, is hereditary. We tried an experiment this year. A hen, used only as a mother, on account of her virtues in that character, was slightly deformed. She ran with a perfect cock, but five of her eggs were put under her with some more; these five all produced chickens with the same defect as herself. We are convinced there is no other cause for the wry tails than this,—it is a malformation.]

Spanish cocks show the white face much earlier than pullets. In many of the former it is white from the very first, and does not go through the period of bleaching that seems to be necessary in pullets. There is no rule for this latter process; but we have little hope of a pullet, if the face at four months does not give the appearance of whitening all over. We have none, if at six months below the eye is white, and over it a deep angry red. We are, however, often deceived. Spanish pullets should lay at seven months; earlier if they are hatched in March, as they grow fast in the five months. If the weather is only moderately cold, birds will moult now as well as at any time. All they require is generous feeding. Wet is the worst weather for moulting, and easterly winds are bad for them at all times.

You will probably find a formation of a cheesy nature under the lid of the eye. Remove it by pressure from behind, and then for a day or two wash it well with vinegar and cold water.]

BIRMINGHAM POULTRY SHOW.—The entries of Poultry and Pigeons show but a trifling variation from last year, the total this year being 1565 against 1559 at the last exhibition. From 1500 to 1600 pens appear to be about the point at which this part of the Show is settling down—a collection quite large enough for all useful purposes, but, as we have seen for the last three or four years, none too large to contain all the really good specimens that can be sent. It is confidently asserted that we shall find a still further improvement in all the principal classes, the interest in breeding poultry obviously increasing from year to year, and at no former period was it pursued with so much spirit and intelligence. The Dorkings particularly will, as usual, be a great feature in this part of the collection, the entries in the four first

classes being not less than 180, which include 78 pens of chickens; while in the useful class of Dorking pullets there are 43 entries. If the promoters of the Birmingham Show had done nothing more than direct general attention to this most valuable breed of poultry, their labours would have been amply rewarded by the increased popularity the variety has obtained; but the improvement of our domestic poultry has unquestionably extended to all our breeds since the establishment of the pleasant contests in Bingley Hall. With regard to those lovely little favourites, the Pigeons, rumour also speaks well; and there are good grounds for the opinion that the Pigeon Show at Birmingham will in future be still more extensively supported by all the principal breeders. We expect to see some birds of a higher class than have ever before been collected in Bingley Hall.—(*Midland Counties Herald*.)

PURE COLOURS OF GAME FOWLS.

"AN AMATEUR" would feel obliged if any of your correspondents would give a list of what are considered the pure colours of Game fowls.

[You impose upon us a very difficult task, and we therefore echo your request, and say *we* shall feel obliged if any of our correspondents will give a list of pure colours of Game fowls. At the same time we think we are bound to have an opinion, and, therefore give it.

Black-breasted Reds. Duckwings. Blacks.
Whites. Blues. Brown-breasted Reds.

The last are, perhaps, less to be depended upon in breeding than the others. The *Piles* are supposed to be "composite," but they breed true. The same may be said of the *Brassy-winged*.

In speaking of the breed of Game fowls from observation, it must always be borne in mind that for many years it was carried on exclusively for the pit, and good fighters were used without reference to colour. We will some day publish from an authentic list the different colours and distinguishing marks of a main fought more than a century ago. It will there be seen that there was hardly what we should now term a pure bird among the cocks. The traditions of these have been carefully handed down; and we have no doubt there are places where the breed is still preserved, and where it is considered a virtue to show variety of colour. Some years since the first-prize Game cock at Birmingham had a breast that resembled the pallet of a painter who had placed on it a patch of every colour he could find or invent. By many this bird was considered a living combination of every known shade; but his owner was prepared to prove him pure, and that the breed was well known and extensively kept in his locality.]

MINGLING VARIETIES—DUCKWING GAME.

MANY years since I entered the poultry field of competition with Gold-spangled Hamburgs, but got beaten by hybrids, mixtures of Moonies, Pheasants, Redcaps, &c. After being tolerably well riled at my failure with my Crystal Palace birds, January, 1857 (chickens), I sold them, and bought and bred all sorts of birds, at different times, placing them at several farms. They were mostly Andalusians, Black Hamburgs, Blue Bantams, Duckwing Game, Malays, Cochins, and mixtures of the two last named, now termed Brahmas. A white Spanish hen would be thrown down to an Andalusian cock, for the purpose of lightening the hue of this class, and making them more self-coloured. A Black Spanish cock would be similarly affianced to a Silver-pencilled Hamburg hen, to produce Black Hamburgs. Blue Bantams were produced as sports of the White and Black ones. Malays, both red and white, were tolerably pure, as also the Cochins, and the mixture of the two latter, as before mentioned, produced even with the first cross an indifferently well-looking Brahma. What they would have done under the eye of a breeder of this class alone, when judiciously crossed some twice or three times, I am unable to say. But more to the point, in reference to Duckwings as at present exhibited, in the person of the prize cock under surveillance, with regard to his purity of strain. Undoubtedly there are two distinct varieties of the Duckwing, independent of the Birchins, and others of these sub-varieties, properly classed, or, at least, separately so. The Black-breasted Silver-grey Duckwing is not so rakeish looking a bird as the yellow-hackled. He is shorter in the face, leg, and bill, a trifle too short, also, in the neck, body, and stern, and only long

where he ought not to be—in the feather. In truth, an unequal match for almost any cross-bred Game bird. Now, in order to remedy these defects, he has been from a long uncertain number of years crossed with the red bird, giving him closer texture, finer points, greater weight, the maroon saddle, and tinged hackle. The foot note to "H. M., *Glasgow's*" communication is quite true. The old prints, or rather pictures, portray the dark saddles, and seldom or ever the light ones, because they were probably portraits, and owed their figure and prowess to this judicious mixture; but in regard to their reproducing their clan true to a feather, it is not to be wondered at, seeing the length of period since, probably, this amalgamation first took place, and cross-breeds will produce their like after a few judicious crosses. A stray bird being the exception, and not the rule.

I hear so much about the purity of breed from birds not throwing back, that I am inclined, and *do*, class every single one of our domestic poultry as more or less made up and manufactured. Well, now we come to the starting point. Is a maroon-backed and yellow-hackled Duckwing Grey cock the veritable animal he is represented? I can only say he is not of recent manufacture, or, at least, *ought not to be*, and so let him take his place; he is no worse than others styled Puritans. But in justice to those who have bred the Silvers,—and I know they are decently pure,—it is not fair to crow them out entirely. I do really think if you imagine they are not quite up to the mark for prizetaking, that something like fair play and a prize or two, ought to be awarded to them.

The best evidence of the purity of the Crystal Palace cock would be, that, if with a purely well-known good grey hen he should produce some chickens with pinky feathers, depend upon it you might suspect his getting up.—W. H., *Exeter*.

PLUMAGE OF SILVER-SPANGLED POLANDS.

As a poultry fancier of forty years standing, I am much pleased to find the ill-judged doubts raised by Mr. Brent, respecting the sex of a Spanish chicken exhibited in pen 22, at the late Crystal Palace Show, are at length so conclusively settled, and that, too, after a fashion that must be "unmistakeable," and amply sufficient to remove all scepticism from the mind of even Mr. Brent himself. To most amateurs it will be really astounding how so gross a misconception could, even at the outset, present itself to any true poultry fancier who actually saw the bird. Yet so it must have been. This difficulty, however, is rendered more incomprehensible by the fact Mr. Brent should afterwards persist in maintaining so incorrect an opinion. This question now settled, however, perchance a wholesome lesson may accrue from poultry critics perfectly assuring to themselves the necessary practical information before attempting to dogmatise to others. Not having the slightest knowledge of Mr. Brent, nothing can be further from my views than to speak offensively. Still, I can only judge of his general information as to all varieties of fancy poultry by his writings, and there cannot be a doubt that he has openly committed himself to quite as grave an error as on Spanish when treating of Silver-spangled Hamburgs. He states, "The combination of striped hackles with clear tails is an unnatural and impossible theory; in practice, only producing disappointment." It is admittedly difficult to obtain, but, undoubtedly, it has frequently been achieved, and these all-important (combined) traits of character are, from such parents, not difficult to perpetuate.

A visit to Birmingham, Liverpool, indeed to most of our north-country Shows, will give Mr. Brent the opportunity of correcting his judgment on this question also.—JUSTICIA.

CROSS BETWEEN COCHIN-CHINA AND SPANISH. BREEDING FROM IMPERFECT BIRDS.

If you can spare me a little space in the poultry department of your paper, I will give a few of my own observations on poultry matters.

My first hatch of chickens this year were Golden-pencilled Hamburgs, and first saw the light on the 7th of March. The hen who hatched them is cross-bred between a Cochin and a Spanish, and she goes by the name of "Old Smut." I think that for all purposes this cross is a most excellent one. The hens are first-rate layers and sitters. I have several of them. They lay all through the winter, which is the time when eggs are most valuable, and the eggs are very large and plenty of them;

four hens laying generally twenty-four eggs a-week. As sitters and mothers they are very good, so gentle and manageable. I am speaking now from my own experience; other people's experiences may, of course, be different. Old Smut had ten chickens, beautiful little creatures, of a light golden colour, with spots of black on the tops of their heads. As soon as all the eggs were hatched that were going to be hatched, Old Smut with her chicks was removed out of the box in which she had been sitting, and which had been placed in a snug corner in the coach-house near the fireplace into a hayloft, and put under a coop. The coop was placed just in front of a wooden window, which was opened when the sun came out. The chickens were fed on hard boiled eggs chopped up, soaked bread, and grits. The bread was sometimes soaked in ale. They grew very well indeed, and I reared them all. I intended them to have taken the first prize at our local Show, the Foke-in-Pogis; but, alas! alas!

Let me beg of all who may read this, to *breed only from their very best birds*. I had bought a prize pen of Golden-pencilled Hamburgs at one of the great Shows last year, and magnificent little creatures they were. I had also a few other Golden-pencilled Hamburg hens, which, though they were very pretty birds, were very far from perfect. In getting eggs for my first hatch, I put all the hens, prize hens, and others, up together,—of course, with the cock,—never thinking, in my simplicity, that my imperfect hens would bring chickens like themselves, with bad combs, horseshoe markings, and the various other imperfections which Golden-pencilled Hamburg flesh is heir to. The result was, that out of my first hatch, on which all my hopes depended for the Foke-in-Pogis Show, which is held early in the season, there were only two right birds.

Fortunately, I saw that most of the chickens' combs were wrong when they were yet quite juveniles, and I took care afterwards to set no more eggs from any other but my prize birds.

I will give you some more of my observations in another number.—C.

LIGURIAN BEES (*Apis Ligustica*).

MAY I venture to hope that others amongst the apiarian readers of THE COTTAGE GARDENER will follow the example so ably set by "B. & W." (to whom I beg to tender my best thanks) in offering such suggestions as may occur to them, with the view of rapidly multiplying the few stocks of Ligurian bees which have recently been imported into this country?

One difficulty attends the introduction of *virgin* queens into hives of common bees, and that is the risk of their being impregnated by drones of the ordinary species. It appears to me that none but *fertilised* Ligurian queens can be placed at the head of colonies of common bees with any certainty of success.

The following information on the subject of Ligurian bees is extracted from a recent number of a sporting contemporary. It is of so interesting a character, and so entirely confirms what has been already stated in these pages as to the superiority of the Ligurian bee, that I am induced to hope the Editors of THE COTTAGE GARDENER will kindly republish it, and by so doing oblige—A DEVONSHIRE BEE-KEEPER.

"The general diffusion of this species of bee," says Dzierzon, 'will form a marked era in the bee-culture of Germany. The profit derived by the farmer from feeding stock depends not alone on due attention to the habits and wants of the animals, but mainly on the character of the breed itself. So, also, with the bee. We find marked difference in point of industry even among our common bees; but the Italian bee surpasses these in every respect. A chief difficulty in the way of a more general attention to bee-culture arises from the almost universal dread of the sting of this insect. Many fear even the momentary pain which it inflicts, though no other unpleasant consequences follow; but in some persons it causes severe and long-protracted swelling and inflammation. This especially deters ladies from engaging in this pursuit. All this can be avoided by the introduction of the Italian bee, which is by no means an irascible insect. It will sting only when it happens to be injured, when it is intentionally annoyed, or when it is attacked by robbing-bees; then it will defend itself, and such are its extraordinary vigour and agility that it is never overpowered, so long as the colony is in a normal condition. Colonies of common bees may speedily be converted into Italian stock by simply removing the queen from each, and, after the lapse of two or three days, or as soon as the workers decidedly manifest consciousness of the deprivation, supplying them with an Italian queen. We are

thereby also enabled to note the gradual disappearance of the old race, as it becomes supplanted by the new. Besides the increased profits thus derivable from bee-culture, this species also furnishes us with no small gratification in studying the nature, habits, and economy of the insect to greater advantage, because, by means of it, the most interesting experiments, investigations, and observations may be instituted, and thus the remaining doubts and difficulties cleared up.' He further says, 'It has been questioned, even by experienced and expert apiarians, whether the Italian race can be preserved in its purity in countries where the common kind prevails. There need be no uneasiness on this score. Their preservation could be accomplished, even if natural swarming had to be relied on, because they swarm earlier in the season than the common kind, and also more frequently.' The main thing to be attended to in any localities where common bees are found or kept is to secure the production of drones in numbers overwhelmingly large; though Dzierzon is under the impression that where both kinds of drones exist in about equal numbers, the Italian queens will usually encounter Italian drones, both queens and drones being more active and agile than the common kind. Besides, the wings of both queens and drones are finer and more delicate than those of the common kind, and the sounds produced in flying are clearer and higher-toned. Hence, probably, they are readily able to distinguish each other when on the wing. The Baron of Berlepsch, one of the most enthusiastic and skilful apiarians, on a large scale, in Germany, says he can from his own experience 'confirm the statements of Dzierzon, in relation to the Italian bee, having found:—1. That the Italian bees are less sensitive to cold than the common kind. 2. That their queens are more prolific. 3. That the colonies swarm earlier and more frequently, though of this he has less experience than Dzierzon. 4. That they are less apt to sting. Not only are they less apt, but scarcely are they inclined to sting, though they will do so if intentionally annoyed or irritated. 5. That they are more industrious. Of this fact he had but one summer's experience; but all the results and indications go to confirm Dzierzon's statements, and satisfy him of the superiority of this kind in every point of view. 6. That they are more disposed to rob than common bees, and more courageous and active in self-defence. They strive on all hands to force their way into colonies of common bees; but when strange bees attack their hives, they fight with great fierceness, and with an incredible adroitness.' Busch (*Die Honig-biene*, Gotha, 1855), describes the Italian bee as follows:—'The workers are smooth and glossy, and the colour of their abdominal rings is a medium between the pale yellow of straw, and the deeper yellow of ochre. These rings have a narrow black edge or border, so that the yellow (which might be called leather-coloured), constitutes the ground, and is seemingly barred over by these slight black edges or borders. This is most distinctly perceptible when a brood-comb, on which the bees are densely crowded, is taken out of a hive. The drones differ from the workers in having the upper half of their abdominal rings black and the lower half an ochry-yellow, thus causing the abdomen, when viewed from above, to appear annulated. The queen differs from the common kind chiefly in the greater brightness and brilliancy of her colours.' Otto Radlkofer, jun., Munich, in a communication to the *Bienenzeitung*, says that a colony of Italian bees, which he transferred in February, began to build new comb before the middle of March, while his common bees had not, at the close of his communication (the last of April), begun to build any new comb. 'Not only,' says Mr. Radlkofer, 'are the Italian bees distinguished by an earlier awakened impulse to activity and labour, but they are remarkable also for the sedulous use they make of every opening flower, visiting some on which common bees are seldom or never seen. They have also demonstrated their superior agility in self-defence; nay, they would not tolerate the presence of other bees on comb that had been strewed with flour for their common use. In all these respects, the palm of superiority must be awarded to the Italian bee.'

OUR LETTER BOX.

JUDGES AT BIRMINGHAM (*Fairplay*).—You had better write to the Council on the subject, and state names. They cannot act upon indefinite allusions.

GAME: YELLOW-LEGGED BLACK-BREASTED RED.—We have a letter from a gentleman who wishes it to be forwarded to "NEWMARKET," who wrote about these fowls. "NEWMARKET" will oblige us by stating whither we shall send it.

WEEKLY CALENDAR.

Day of M th	Day of Week.	NOVEMBER 22—28, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets.	Moon's Age.	Clock after Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
22	Tu	Sun's declin. 20° 6' s.	30.132—30.011	38—12	E.	—	32 af 7	1 af 4	9 5	27	13 47	326
23	W	Oxalis laxula.	30.063—29.924	28—09	E.	—	33 7	59 3	33 6	28	13 30	327
24	Th	Oxalis repatrix.	29.863—29.627	34—29	S.E.	—	35 7	59 3	sets	29	13 13	328
25	F	Oxalis variabilis.	29.487—29.236	50—45	S.E.	.02	36 7	58 3	0 a 4	1	12 55	329
26	S	Oxalis Simsii.	29.292—29.216	57—36	S.W.	.02	38 7	57 3	54 4	2	12 37	330
27	SUN	ADVENT SUNDAY.	29.045—28.975	51—39	S.	.04	40 7	56 3	0 6	3	12 17	331
28	M	Primula sinensis.	29.208—29.049	50—40	W.	—	41 7	55 3	10 7	4	11 57	332

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 47.3° and 34.2°, respectively. The greatest heat, 59°, occurred on the 27th, in 1843; and the lowest cold, 20°, on the 22nd, in 1827. During the period 117 days were fine, and on 107 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE great object should now be to keep them moderately dry; water, when necessary, to be given in the forenoon. Gentle fires to be applied in the daytime, with a sufficiency of air to allow the vapour to pass off. All decaying leaves, flower-stalks, &c., to be carefully picked off. All weeds, moss on the surface of pots, or anything else that would tend to cause dampness, mildew, or decomposition, to be cleared away. Pinch off the tops of any of the half-hardy plants that are growing too rapidly.

CLIMBERS.—To be closely tied, that they may interfere as little as possible with the admission of light.

FORCING PIT.—The various plants described in former Calendars, and recommended to be forwarded here for furnishing the drawing-room, conservatory, or mixed greenhouse, will require careful and skilful attention. Moderate syringings with tepid water to be given on suitable occasions. Fire heat to be applied, more especially in the daytime, with air at every favourable opportunity. The pit to be shut up early, and the heat to be husbanded by external coverings in preference to night heat. Syringings with the Gishurst Compound, or frequent and moderate fumigations of tobacco smoke, to be given to destroy green fly. The water to be always tepid when applied to the roots or branches when they require it.

NEW HOLLAND PLANTS.—As they are very apt to suffer when exposed to cold draughts of air, and as they are generally wintered in the same house with the more hardy sorts of greenhouse plants, they should occupy a part of the house where air can be admitted, when necessary, from the top lights only.

ORANGE TREES.—Advantage to be taken of unfavourable weather for out-door work, to clean the foliage of Orange trees and Camellias. It is as essential to the health of such things that the foliage be kept clean, and, therefore, in a fit state to perform its functions, as that their roots be kept in a healthy, active state.

FORCING-HOUSES.

ASPARAGUS.—Make a slight hotbed of tree leaves, if they can be procured, of size or substance sufficient only to cause a gentle heat. The roots may be taken up from the open ground, and planted at once in the bed. Mice and slugs to be looked after. Any vacant pits, or frames, may be made available for the purpose of forcing Asparagus.

CHERRIES.—To be treated as advised for Peaches.

CUCUMBERS.—If the plants are strong, and you have a full command of bottom and atmospheric heat, you may calculate, with a little attention, upon ultimate success. Air to be admitted when it is safe to do so, to get the leaves dry, if possible, daily. Light is indispensable, and steep-roofed houses, or pits, are preferred for that object in winter. The early nursing-box for young plants should be well supplied with linings, the glass washed clean and kept in good repair.

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MUSHROOMS.—Continue to prepare succession-beds as formerly directed. The beds that have been in bearing some time, if the surface is dry, to be watered with clear, weak liquid manure, a few degrees warmer than the temperature of the house.

PEACHES.—The early house should now be set in order, by being thoroughly cleansed, whitewashed, and the trees pruned, dressed, and tied. Air to be given during the day, and the house to be shut up at night for a fortnight or three weeks, preparatory to the commencement of forcing.

PINES.—The principal objects of attention during the present dull season should comprise a moderate declension of heat and moisture, and a moderate supply of air at all times when it can be admitted with safety. When heat is supplied by fermenting materials the linings will require some sort of covering—as straw, fern, boards, or shutters—to protect them from cold winds, frosts, or rains; only a gentle bottom heat is now required at this, that should be, their season of rest, as a dry and moderately warm atmosphere is nearly all they will require. If the young plants are growing in pits heated solely by dung linings, be careful to exclude the steam from the dung, as excess of damp will rot the hearts of the plants.

VINES.—If early Grapes are required, it is advisable to adopt the old-fashioned plan of placing some sweet hot dung inside the house, to produce an atmosphere that is most congenial for softening the wood, and for “breaking” the buds. The roots, if outside, to be covered with a good depth of litter, to produce an increase of heat by fermentation, and to prevent the escape of terrestrial heat. All Vines casting their leaves to be pruned immediately.

WILLIAM KEANE.

TRITOMA UVARIA, TRITONIA AUREA, AND FARFUGIUM GRANDE.

Down to 9s. per dozen in less than one-third of the same number of years since THE COTTAGE GARDENER advised one of its friends to offer 1s. the plant for *Tritoma uvaria*, when it was marked in the price current of the day at 30s. per dozen, or 3s. each! But, suppose there was such a yearly demand for it as there is for good, sound, mealy Potatoes, at how much per plant could it be sold, after paying £20 rent for an acre of deep, moist, sandy loam to grow it on for the market? I shall leave the “sum” to be calculated by the boys at their Christmas holidays, after showing them the progressive ratio, or the compound multiplication way of propagating it at such a distance apart, in rows, over an imperial acre, and allowing 50s. for planting and keeping clean the crop, and £5 for all other expenses, as digging, ploughing, or trenching, but nothing for rates and taxes. Every plant of it in the Royal Botanic Garden at Kew which had more than fifty spikes of bloom on it this last autumn would now divide into from 80 to 120 plants, every one of which would blossom next year; and an acre of the sets would do very well indeed to be planted exactly as they

plant Potatoes, and at exactly the same distances—that is to say, so many inches from set to set along the row, and so many inches between one row and another.

There is but a wonderful little difference between cutting Potatoes for sets and Tritomas for suckers; and late in the autumn is certainly the best time to do it, as I shall show presently. I have said that I divided two small plants this time last year into fifteen plants, and that four of them bloomed; since then, however, every one of them bloomed, and some of them had as many as five spikes—some of the spikes were fully six feet high, with the leaves longer than the bloom-spikes, and all from mere sets, small, in proportion, as ever Potatoes were cut in times of dearth. Gardeners who know about growing Pine Apples know very well that good bottomed suckers are half the battle. They also know that to allow one, two, or three suckers only to remain on a plant after fruiting would be the best way to make sure of that one-half of the battle; and about as wise as counting the stars to do so if the aim were to make the greatest number of Pine Apple plants from every one that had fruited. All that belongs to the old school, however. The new idea would rattle you out as many variegated-leaved Pine Apple plants as one could count in a summer's day, without allowing them to fruit at all, and make suckers in the old-fashioned way, to be rooted in tan in front of their betters, and so forth.

The new way to get variegated Aloes, variegated Pine Apple Plants, variegated Yuccas, and all variegated-leaved plants which grow, as Pines, Aloes, and Yuccas, is to get the plant first well rooted in strong, rich, stiff soil, and then wait till the approach of the next growth, which is easily perceived in such plants by the landmark of the resting time at the bottom of the leaves. As soon as growth sets in, a grand plunge is made into the very heart of the plant with a long pointed piece of iron rod, with two or three short barbs made next the point. The point is thrust down in the centre between the leaves; and when it is at the bottom it is twisted round and round, so that the barbs may lacerate and destroy the lengthening point, or bud, from which new leaves or a flower and fruit-stem would issue. In fact, it is just the same as cutting off the top of a Brussels Sprout to hasten the sprouts, or stopping the leader of a tree or branch in order to get more side-branches.

At this point doctors differ. Some of them hold that all the leaves on a stopped Pine plant, or on the stump of one just fruited, should be left whole to do the work; and others maintain, and I am of their number, that that is riding science without a saddle. One can get to the end of a journey without a saddle, it is true; but then it shakes one so much, that, rather than repeat the task, one would walk the whole distance. For the result which the young ideas are driving at, all the old leaves on the Pine Apple plant, and on the Yuccas and Aloes, and all their allies, must be cut down as low as possible, and a smart bottom heat is to be then applied to circulate the sap more freely than common; and as there is no top bud to push on, or an old leaf to be filled as fast as it has parted with its last load, something else must give way to let out the heated juices—and that something is another something worth looking at. Every part of the root-stock that ever supported a leaf has a hidden bud at that part, as sure as the centre bud which was barbed out; and the force of the sap in this pent-up condition will put life and motion into ever so many of these mole-eyed buds, and cause them to break out into side-suckers or branches. Then, instead of standing up at the old notch of so many half guineas for fine variegated-leaved this, that, and the other essential, they will soon come rattling down to a roaring trade price, which will soon pay for past cheese-parings and stagnation of the circulating medium.

It was not for the sake of getting cheap plants with fine foliage, however, but to show the two ways by which

Tritoma uvaria might be propagated to get that acre of land planted, that I thought of the fast fashion of increasing Aloe-like plants. *Tritoma* itself being an Aloe-like plant, or a Pine Apple-like plant, and all such plants never flower but once from the same part; and after that part has flowered, the leaves on it may be cut right down, if the aim is an increase of offsets, but no cutting-down except for that one object. Now, if I were to grow *Tritoma uvaria* to the highest pitch of perfection, I would not allow a morsel of the leaves to be cut off; or if I only wanted two or three more plants, I would never cut it after the manner of cutting Potatoes, nor late in the autumn. I would wait till March, and then take “the half-of-the-battle” system with so many of the strongest suckers—that is, I would look out a plant or plants which had the fewest and strongest suckers on, then cut off the old top or leaves, and merely divide the old root-stock into three or four parts, with as many roots to each as possible, and plant them at once where they are to bloom. But when the object is to divide the old plant into the greatest number of sets, I would do it late in the autumn, before the three or four strongest offsets could have time to draw to themselves the whole force of the old root-stock, so that all the sets would have a share in the sap. These larger number of sets might be planted at once where they are to remain; but as they will only advance in the roots all the winter, I prefer putting them in lighter soil till April, for the express purpose of enabling them to multiply the roots in the meantime, and to give them the advantage of the next start in richer and stronger soil.

What I have done with my fifteen plants from the small sets of last year is this. I planted three pairs of the strongest of them, in three front gardens, to show his lordship of St. Leonard's the lawful way of bringing these most beautiful flowers before him and the public, as they pass up or down the Victoria Road, Surbiton. Four more of them are off to better quarters than mine; one is left to see how soon it will rise to seventy spikes of bloom in the original bed; and four I have divided into twenty-eight young plants, one of which made nine sets, and all of them could have been made into ten or twelve sets, if the old plant had been cut so close as those were last year. If the fifteen had been cut to ten pieces each—and that they could have been comfortably—there would be 150 at the end of the first twelve months from two ordinary small ones; and the 150 could be in the market, and in first-rate market-order, by the end of the next season's growth. At that rate, a moderate rate, this plant yields ten-fold in one season. One acre this year to give ten acres next year is no bad increase; but a stagnation at the roots never fails to induce a corresponding stagnation in the market. The more costly a plant is, the less likely it is to pay. This *Tritoma* stood at 30s. per dozen for more than twenty years running, and one could hardly make bread and cheese of it. Now that it is down to 12s. a dozen, dealers can have beefsteaks and good puddings out of it and plenty to spare.

There are fifteen thousand witnesses, passengers on the South Western Railway, who can testify to the success of *Tritoma* as a half-water plant in my garden; but next year, if I live, I mean to turn over a new leaf, and in April make a trench across the garden parallel with the South Western for the twenty-eight sets just mentioned. The trench will be about the same as for Celery in every particular; the planting out will be about fifteen inches apart, and I shall earth them up on the old-fashioned way of earthing-up Celery as fast as they grow, till the trench is filled to within three inches of the level of the garden, and that will leave me a shallow trough to pour as much water into as I possibly can, and some strong water very often. But for ordinary work I would only advise planting very young sets, after the manner of Celeriac, or as deep as early Potatoes, and a large basin left to each plant; and this, with Samuel Gilbert's plan

of perpetual suction by means of a tub of water and a few woollen lists, to discharge into the basin from May to September, the arrangement would be as complete and promising as the British Constitution.

My trench is for a grand experiment on a new scientific basis. The very richness at the bottom of the trench is to force up Celery-like rankness; the earthing-up of young plants of Tritomas as fast as every three or four inches of their growth are made, and before the leaves have time to spread out from their rigid shape, will induce long corms, or root-stocks, to be formed—something like the creeping underground stems of Cannas and Ginger, or between that and Horseradish “roots,” knowing the longer these “roots” can be had the more eyes there will be next season to cut into sets; for I verily believe that the “roots,” or root-stock, of Tritoma is as full of eyes as the “roots” of Horseradish—at least if they are humoured with an enormous quantity of water all the time they are in growth. Whether it be a marsh plant and would live in swamps all the winter I know not; but it strikes me that it is, and that up to the ancles in water—all the summer at least—would be just the very thing for it. I forgot to ask Mr. Eyles, at the Crystal Palace Chrysanthemum Show, if he had got in a dozen of stout plants of it to try next summer on the Crystal Lake at the best end, where they would vie with the *Dicksonia squarrosas* in the bronze fountain at the opposite end. I meant to try a pair of mine in large pots, to be kept in saucers of water all the summer, till I heard of the better plan by Mr. Eyles; but some one might try the pot and saucers still, as my stock is now out of my reach.

By the way, I saw at the Crystal Palace basins the *Farfugium grande* in grand bloom. Not at all like a Coltsfoot; more like some new Rudbeckia—a stout flower-stem, some eighteen inches long, and an open branchy head of large, yellow, Rudbeckia-like blossoms.

TRITONIA AUREA.—This name comes so near Tritoma, that some people can hardly keep the two apart in their memory; yet their natures are as different as possible. After all that has been said and done about *Tritonia aurea*, it is decidedly as much of an evergreen as *Vallota purpurea*; and the same treatment all the year round suits them both to the very letter. There is a plant or a pot of it now in bloom in the conservatory at the Experimental Garden, as large as a man can lift, and of as fine a colour as any yolk-of-egg-yellow Dendrobium that ever was. Grown on that system since the seeds were sent to me, five or six years back, by a gentleman near London, who excels in the cultivation of rare plants, even in that of *Disa grandiflora*—the most difficult plant in this world to do, these bulbs have never yet been dry one day since the seeds sprouted, and nothing can succeed better. I tried one box of the bulbs this summer on the Ixia and drying system in my home garden, which gave the usual result—a produce hardly worth looking at after knowing the other side of the question. But when the hard frost of October set in, that box was most useful to test the hardiness of the bulbs. It stood by the box of Cyclamens, and I could afford to lose it; therefore it was not covered at all. The stalks and leaves of last summer were all but dried up; and the young fry of running suckers were just visible, like young Wheat breaking ground. They all stood 12° of frost without a blister. They also stood 17° of frost soon after Lord Mayor's day, for my glass indicated that number on the morning of November 13; but the young Wheat-like fry were all killed into the crust of frost on the surface of the box. I then took compassion on them, shifted the frozen ball from the box to one twice the capacity, and put them in from the frost. The roots, the runners, and what was in ground of the young suckers, have not suffered the smallest hurt; and I should say, that with six or eight inches of coal ashes over them, no winter would kill *Tritonia aurea* in England.

But, to square up our accounts as we go, I must

mention that 70° of frost all but killed the leaves of an established plant of *Farfugium grande* planted close to a north wall, where it never had the sun till five in the afternoon, and where it grew most vigorously. Nothing is to be put over the roots of this plant except an inch of soil—it was planted on purpose to balance accounts with the frost.

D. BEATON.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(Continued from page 81.)

THE THIRD SEASON.

OUR autumn arrangements left us but little ground in tillage except what was in crop, or arranged for a crop. It is true a portion of the Clover lea was advised to be broken up in order to grow a few Potatoes, *Mangold Wurtzel*, or other crops of that kind. If for the use of the cow, the Mangold would be, undoubtedly, the best. About twenty rods of the worst of the Clover lea might be so broken up, and if that were done by hand the sooner in the winter it was done the better. A slight trenching would be again serviceable, and some dung might be buried rather deeply in the ground. The middle or end of April is soon enough in a general way to sow this crop, and do not by any means crowd it too much. The appearance of a neighbouring field, where the crop is well grown, may be taken as a very good guide; but if no such example be near, we may say that rows from twenty-four to thirty inches apart will not be too much, and about a foot from plant to plant in the row. Thinning, and it may be transplanting, a few to fill up any broken places must be duly attended to, such planting to be done in moist weather and when the plants are about the size of Radishes fit for the table, or less. Hoeing and destroying all weeds is a job so universally admitted as indispensable in all cultivations, that it is needless repeating it in every case here; but a certain amount of hoeing or other disturbing of the soil is often necessary where there are no weeds; and this must be duly attended to between the rows of this crop at various times, until the advancing growth of the plants renders it difficult to do so without injuring the leaves. After that little requires doing but to take up and house the roots in the autumn, as described in a former chapter; taking care in trimming the Mangold Wurtzel not to cut the top off too close, as it is better to leave half an inch or more of the base of each leafstalk on the tuber, than to cut them into the quick, as they bleed and are more likely to decay. The top, in fact, ought to be trimmed off in a conical manner, and not cut off at right angles with the tuber. Carrots may, however, be cut more closely in, and so may Swede Turnips; the great thing is to get them put together as dry as they can be, and, the season being late, a fine day must be chosen for the job.

REMARKS APPLICABLE GENERALLY.

The third season requiring on the whole less labour than the two preceding ones, anything requiring doing in a permanent way may then be seen to. The fences, if there are any live ones, ought to be kept scrupulously free from weeds, and if new planted, a very slight trimming may be given them when the growth is nearly perfected; but, in a general way, it is better not to cut such Quickset hedges until autumn—that is, such as have not arrived at a fence condition, as cutting any deciduous tree or shrub in the period of its full growth is at all times a check to its further progress. Such checks are very well for fruit trees, as inducing greater fruitfulness. A full-grown hedge will endure it with impunity; but a young rising Quickset ought not to be so maltreated as to be ruthlessly shorn at Midsummer, under the plea of making it look nice. A plant less hardy and accommodating than the Quickset, would be half killed by

this treatment. As it is, the after-shoots of the Quickset become mildewed and useless, and the whole plant is scarcely any stronger than it was the preceding season; whereas, if the plant were allowed to grow out and ripen its shoots, as Nature intended it should do, these shoots might be cut down to any required amount in winter, and a strong vigorous growth the ensuing season would be the result. Therefore, bear in mind to cut young Quicksets only in the autumn or winter. Keeping them clear from weeds at all times is necessary; and if there are any gaps let them be filled up as required. If the fence is yours, there will, most likely, be a ditch on the side of your neighbour's, which you must clear out and keep free. At the same time you have the privilege of planting fruit trees if you like in the Quickset hedge; and a few Damson or common Plums, on six-foot standards, may be planted with advantage. The Damson will be very useful, and on a stiff soil it is most productive, as, likewise, are other Plums. Apples and Pears do not thrive so well, and Cherries are so liable to be destroyed by birds, that I would not advise their being planted; but as directions hereafter will be given on this point, it need not be entered into here.

AUTUMN OF THE THIRD SEASON.

If all have gone on well, the crops will be thus:—

- 60 rods Grass, now getting to be a nice sward.
- 100 „ Clover lea, which being about exhausted, may now be broken up for other crops.
- 80 „ Clover, young plants that had been sown amongst the corn, this to stand for principal crop of next year.
- 20 „ of Potatoes or some green crop.

This being the state of the cropping at the end of this season, we may now take a retrospect of the past and determine for the future in another chapter.

J. ROBSON.

(To be continued.)

THE PRUNING SEASON.

THE fall of the leaf reminds us of those autumnal proceedings which return with the return of years. Amongst the rest is the present subject; which, although formerly considered a winter or spring piece of business, has now assumed another shape. Gardening in 1859 is not what it was forty years since: there are now three times as much spring business as in those times. Pruning then was understood to be an employment for the dead of winter, when folks could do nothing else; but now the dead of winter has double duties to perform in many cases. Indeed there is more humanity abroad. It is not considered even good policy now to set men to prune trees amongst the snow; or to keep an unfortunate nailing during a sharp frost, when it takes half his time to buffet and blow his fingers.

But as to pruning, training, dressing, &c., which, to be done in March, would tend to damage the whole foundation of the summer's business—how much better it is, as a gardening policy, to push it forward in autumn. Another point may be named. There are certain operations connected with the roots of the trees or borders which cannot be well carried out until the former operations are concluded. But many trees require dressing on the heels of pruning; and in my opinion the earlier in the winter they are dressed the better. Bush fruits may very properly be pruned first, and Raspberries; then I would take ordinary standards or orchard trees; then Pears, Apples, Plums, Cherries, &c. Peaches and Nectarines may stand over until the end of January; and the Apricots until they begin to show the blossom-bud, as they often blossom on the young spray.

Of Gooseberries it has been said that you may thin out as you like, but not shorten them; but I do not agree with so sweeping an assertion. I have shortened my Gooseberries for years, and find them better for it; not, however, wholesale, but removing all straggling points. By this practice I find that the fruit is gathered in half the time, and with much less pricking of fingers. Red Currants require well shortening, or their stems become naked of spurs: of course all side-spray will be spurred back. White Currants furnish their stems much better, and need little

shortening. Black Currants require well thinning, but not shortening, unless any shoots run inconveniently high. Raspberries are generally reduced to about four or five good canes, and these shortened to four or five feet.

With regard to orchard trees. Those of size and age merely require the interior barren or decaying branches removed, and all small spray springing in the interior from the older branches. At the same time dead or decaying points may be removed. Younger Apple trees in the kitchen garden require chiefly superfluous spray to be removed, and occasionally an older branch taken away. Many of these are better with their points shortened back, and that in proportion to their strength. From eight to ten inches are enough length to be left under any circumstances on trees under a dwarfing system. If left their full length, the consequence would be that bushes would speedily become trees, and people would say, "How your garden is overgrown! These Apple trees surely shade things too much." But the day is gone by for permitting overgrown fruit trees in kitchen gardens. To revert to the orchard trees. There is no need for much shortening here. They are required to rise and to extend; and under such circumstances will yield a far greater produce than the dwarfed trees of the kitchen garden.

Pears deserve especial notice. One thing is certain—that we must not allow them to become smothered: the retained wood must have light, and more light than Apples require. Therefore all spray whatever, or breastwood, unless intended for the tying-down system, must be removed—it is spurs we want. Ordinary English orchard Pears will do almost anyhow: not so our finer and more delicate varieties. It is also necessary occasionally to shorten the shoots; but when the latter require much shortening it is high time they were root-pruned. Plums require a little handling—the removal of intrusive breast-spray, and occasionally a shortening of long shoots. Cherries require very little of the knife—no tree so little. Peaches and Nectarines are well known to require much thinning under the old system; but by the pinching plan there will be little for the pruner's knife.

Apricots I would not prune until the last; not, indeed, until the character of the buds could be determined by the first stage of development in March. No man can determine with precision what are not blossom-buds when the trees are quite dormant; although he can easily tell which are, if in the character of natural spurs.

I will, to sum up, offer a scale to assist the beginner, showing the needs of each fruit as to light; and I will place them consecutively, beginning with those that demand the greatest amount, and the others in due order. This may assist the young pruner.

The Vine.	The Plum.	The Gooseberry.
The Apricot.	The Cherry.	The Raspberry.
The Peach.	The Apple.	The Black Currant.
The Pear.	The Currant.	

By this order of fruits any novice may guess the amount of thinning required during the rest period, as also have a guide to the disbudding or stopping process during the growing period. I do not say that it is an infallible guide, but will convey a tolerable idea of such procedures.

But, after all, it is pitiful to see the necessity that exists for much pruning, and to know that by proper precautions at planting time much of this labour might be saved. How is it that we meet with Pear trees, in various parts, of great size, and laden with grey-haired honours, which bear bushels year after year, yet never pruned? Instead of producing rods fit for basket work, make young shoots annually of about three to six inches in length. And only observe full-grown Thorn trees in the park, laden annually with their crimson treasures,—no pruning, no manure. But some one may say, "I do not manure my trees in my kitchen garden." Be it so; but, admitting no powerful manures are applied, do such persons constantly bear in mind that all such gardens abound in humus, which is a mighty promoter of an over-rapid root action, although not, perhaps, coming under the denomination of a high stimulant?

But the old Pear trees before quoted and the old park Thorns are not growing in a similar soil to that which has grown Celery, Cabbages, &c., for many years. That soil is what may be called primitive; it knows neither the spade nor the wheelbarrow.

Since, then, our trees in gardens will bother us so with pruning, my advice is, strike at the root of the affair,—root prune. This is not practised half so much as it deserves, for it is only yet half appreciated. I, therefore, beg again to direct the attention of the readers of THE COTTAGE GARDENER to its importance; they

will find abundant directions in back numbers for many years. Still, there is yet another course more eligible, and that is what people call "to begin at the beginning," in other words, so to prepare the soil before the tree is planted as to preclude the possibility of its producing too much spray.

I have, ever since the commencement of this work, urged the great importance of platform planting, or, in other words, confining the roots of a tree to a given position, and with calculated resources. These platforms being impervious, and having a definite boundary, we can readily know what the roots are about: indeed, know as much about them as of the branches. I do not say that they may never exceed those bounds; but I would make them work hard first, and then, when age and hard bearing proved overpowering, let them by all means break their limits, and, indeed, give them extra food. This, combined with surface dressings and a total absence of the spade, will, I am perfectly assured, do all that is desirable with ninety fruit trees out of a hundred.

I well remember that more than a score years since I was called in to advise about a large conservatory. The proprietor had, at considerable expense, built a span-roofed house—one that was then thought of an overpowering size. This house had been built some half score years, and was planted according to the fashion of the day, with huge-growing Acacias, Eucalypti, and other back-wood notables; and they were in such a hurry upwards, that they threatened to unroof the house. In the more foremost rows were some Camellias, which seldom blossomed, and in front some very nice Epacrises, and dainty New Holland plants. But, what a struggle! These giants of the bush were about to have the house to themselves, and many of the little better-behaved ones in front showed manifest marks of their tyrants.

And this brings me back to root limitation. How easy would it have been to have placed four huge stakes in a quadrangle about each monster, and thus have shown him the mastery of man. And even the Camellias, why did they not blossom? Because the soil, fat loam and bog earth, seven feet in depth, encouraged such a multiplicity of fibres, that the Camellias had not patience enough to form blossom; but, truant like, must run to play into a second growth.

Now, although some may not think the case bears on fruit trees, with all due respect I am assured it does. Indeed, we derive much of our best knowledge by watching such results, which sometimes teach more than books. R. FERRINGTON.

OXALIS BOWIEI'S TIME OF BLOOMING.

GENTIANELLA NOT FLOWERING—LIST OF SQUILLS—CUTTING DOWN DRAWN GERANIUMS.

I PLANTED a pot of *Oxalis Bowiei* in a cool frame last spring as Mr. Beaton directed, but the bulbs remained dormant till August. I suppose I must keep them in a frame during winter; but will they be of any use to make a display next summer? I have also a pot of *Ferraria undulata* lately up, which I treated in the same way.

Is the Gentianella difficult to flower? I have it growing in a light rich soil, and it has not showed a flower for years.

I grow the following varieties of Scilla; and as I am particularly fond of spring bulbs, would you let me know the names of a few more good varieties? I grow *Scilla amœna*, *præcox*, *Sibirica*, *bifolia*, and *bifolia alba*.

Whether is spring or autumn the better time to cut down drawn plants of show Geraniums growing in a window?—AN AMATEUR.

[August is the natural time for *Oxalis Bowiei* to begin to bloom, and to go on growing all the winter; but it is, like a few more Cape bulbs, capable of being made to bloom and grow in summer and to rest all the winter, as has been shown lately by Mr. Robson, and proved years since by the experience of many. One crop of bulbs must always be sacrificed in changing this *Oxalis* to a summer bloomer by taking it up, or drying it, in the midst of its growth in November; then it must be pushed in heat the following April till the leaves break ground, and no more; after that and the following summer's growth those bulbs will constantly go to rest in October, and begin naturally to grow in the spring. It was on the principle of this artificial summer growth that all our notices of *Oxalis Bowiei* in THE COTTAGE GARDENER were based. It is curious that bulbs of two allied divisions of Amaryllis, natives of the Cape, show the two sides of this change of natural time of growth and bloom. All the true

Amaryllises begin growing in the autumn like this *Oxalis*, and will not depart from it with impunity; while all known kinds of the so-called Amaryllises—the Hippeasters—will change their natural times of growth and rest at pleasure. *Ferraria undulata* is a delicate subject, and requires care in the watering: it grows from the end of September till May, and requires the treatment of a delicate *Ixia*. Do you grow *Ixia viridiflora*—the most curious colour of all bulbs, and one of the most beautiful and easiest to manage?

The Gentianella blooms as freely as the Daisies where the soil suits it; and where it does not it will not yield to profitable culture at all. Try mixing sand with the soil.

You have the best of the Scillas; but *verna* and two varieties of *campanulata*, blue and white, would give different forms of bloom in the way of *amœna* and *bifolia*.

Spring is certainly the best time to cut down long-legged Geraniums; because, if they were cut in autumn, the legs would be "as long as ever" before next blooming time.]

THE SCIENCE OF GARDENING.

(Continued from page 82.)

THE SAP.

As there is a very close similarity in the blood of all animals, so does the same resemblance obtain in the sap of plants. Uniformly it is limpid as water, its chief constituent, and contains an acid, salts, and mucilage or saccharine matter. The proportions, of course, vary.

The basis of this sap is the moisture of the soil and atmosphere absorbed by the roots and other organs; and that that power of absorption is very great we have previously stated. Neither is it an indiscriminate power; for if the roots of a plant are placed in water containing two or more salts in solution, they will abstract different portions of those salts, and will reject some of them entirely. Thus, when 100 grains of each of the following salts were dissolved in 10,000 grains of water, and plants of *Polygonum persicaria*, *Mentha piperita*, and *Bidens cannabina* were made to grow in it, they took up six grains of sulphate of soda (glauber salt), and ten grains of chloride of sodium (common salt), but not a grain of acetate of lime.

The moisture from the soil absorbed by organs having such discrimination and absorbing powers passes up vessels situated in the wood, but especially in the alburnum, impelled by their contractile power—a power so great that it drives the sap from the extremity of a cut Vine-branch with a force capable of sustaining a column of mercury thirty-two inches and a half high. If a proof of their contractile power, evidently resembling the peristaltic motion of the animal bowels, be required, Dr. Thomson justly refers for such proof to the evidence afforded by milky-juiced plants like the *Euphorbia peplis*. If the stem of this plant be divided in two places, the juice flows out at both ends so completely, that if it be again bisected between the two former cuts no more juice will appear. Now, it is impossible that these phenomena could take place without a contraction of the vessels; for the vessels in that part of the stem which has been detached could not be more than full; and their diameter is so small, that, if that diameter continued unaltered, the capillary attraction would be more than sufficient to retain their contents, and, consequently, not a drop would flow out. Since, then, the whole liquid escapes, it must be driven out forcibly, and, consequently, the vessels must contract. (*Thomson's Organic Chemistry*, 988.)

The ascent of the sap has been endeavoured to be explained by M. Dutrochet, upon mere mechanical principles. He observes—"If one end of an open glass tube be covered with a piece of moistened bladder, or other fine animal membrane, tied tightly over it, and a strong solution of sugar or salt in water be then poured into the open end of the tube, so as to cover the membrane to the depth of several inches—and if the closed end be then introduced to the depth of an inch below the surface of a vessel of pure water, the water will after a short time pass through the bladder inwards, and the column of liquid in the tube will increase in height. This ascent will continue, till, in favourable circumstances, the fluid will reach the height of several feet, and will flow out or run over at the open end of the tube. At the same time the water in the vessel will become sweet, or salt, indicating that while so much liquid has passed through the membrane inwards, a quantity has also passed outwards, carrying sugar, or gum, or salt along with it." To these opposite effects

Dutrochet gave the names of—*endosmose* denoting the inward progress, and *exosmose* the outward progress of the fluid. He supposed them to be due to the action of two opposite currents of electricity, and he likens the phenomena observed during the circulation of the sap in plants to the appearances presented during the above experiment.

This hypothesis cannot be satisfactory; for such *endosmose* has no power sufficient to sustain thirty-two inches and a half of mercury, as is done by sap propelled by the Vine, and it entirely fails to explain the discriminatory power possessed by the spongioles, as well as the fact that the sap will be ascending on the heated side of a tree, whilst it will be quite unmoved on the side which is cold.

Thus propelled, the sap is distributed along each branch to every leaf, and to every fruit of the plant, gradually acquiring during its passage a greater specific gravity, not only by exhalation, but by dissolving the peculiar secretions of the plant formed during its previous year's growth, and deposited in the albumen from the sap during its downward course in the inner bark from the leaves. It is in the leaves that the chief elaboration of the sap takes place, and those peculiar juices are formed characteristic of the plant, and which are found deposited there, or in the bark, or still further altered in the fruit and seed.

The ascending sap of the Vine, Elm, Beech, and some few others has been analysed, but the results are so similar that we need only particularise two. Dr. Prout, M. Robiquet, M. Deyeux, and others, agree in stating that the sap of the Vine (*Vitis vinifera*) has a specific gravity not greater than that of pure water, a fact explained by its containing much carbonic acid gas. Its taste is sweetish. When 2300 grains of it were evaporated to dryness, only one grain of solid matter remained, about half of which was saline, composed of tartrate of lime and bitartrate of potash, and the remainder was a gummy vegetable substance.

Boussinghault has analysed the sap of the Plantain (*Musa Paradisica*), finding in it tannin, gallic acid, acetic acid, common salt, and salts of lime, potash, and alumina.—(*Journ. de Pharmacie*, xxii., 385.)

After being elaborated in the leaves the ascending sap is entirely changed in its qualities and constituents, and the *descending* sap is found to be either milky, gummy, resinous, astringent, sugary, acid or saline.

Milky descending saps.—We will only particularise that of the Lettuce (*Lactuca sativa*). This contains albumen, caoutchouc (Indian-rubber), wax, chloride of calcium, phosphate of lime, potash, gum, nitrate of ammonia, acetic, with another acid, and a bitter principle called *lactucarium*. In this *lactucarium* the peculiar flavour and properties of the Lettuce reside. It has been employed in medicine as a substitute for opium, possessing its soothing without its inconvenient properties.

Gummy descending saps are familiar to us in the Cherry, Plum, and Peach; but, in truth, all descending saps are gummy, for *cambium*, the substance deposited in all those parts of vegetables where growth is occurring, is chiefly gummy or mucilaginous matter.

The *resinous descending saps* are familiar to us in the Coniferae; and the *sugary* in the Carrot, Parsnip, and Beet.

The *saline* and *acid* descending juices are still more varied and peculiar. Thus that of Wolf's Bane (*Aconitum lycoctonum*) contains citrates of lime and potash; *Delphinium elatum*, *Ranunculus aconitifolius*, *Thalictrum flavum*, *Clematis recta*, and *C. viticella*, all contain similar combinations of citric acid; Clary (*Salvia sclarea*) contains benzoate of potash; Rue (*Ruta graveolens*) contains malates of potash and lime; Agrimony (*Eupatorium cannabinum*) contains phosphoric and another acid; Spinach (*Spinacea oleracea*) contains oxalates of lime and potash, and malate and phosphate of potash; the common Indian Cress, or Nasturtium (*Tropaeolum majus*) contains phosphoric, nitric, and malic acids united to lime and potash; Virginian Poke (*Phytolacca decandra*) contains oxalate of potash; and the Sorrels and Oxalises all contain an excess of oxalic acid.—J.

(To be continued.)

RESTING ORCHIDS.

WHEN should the season commence for resting the following Orchids—*Cattleya crispa*, *C. bicolor*, *C. labiata* (blooms cut November 10), *C. Mossia*, *C. Skinneri*, *Dendrobium chrysanthum*? I possess Williams's "Orchid-grower's Manual;" but his answer is, "when they have made their growth." Now, unhappily, my

Cattleyas, especially *crispa*, are always growing, and seldom blooming. *Labiata* blooms well in the same house; but I attribute this to being three weeks or a month in the window of the drawing-room whilst in bloom.—A SUBSCRIBER OF SEVERAL YEARS.

[*Cattleya labiata* blooms in the autumn, consequently it should have its season of rest through the winter, and be started into growth about the middle of March, and perfect its pseudo-bulbs by the end of July. *Cattleya crispa*, *bicolor*, *Mossia*, and *Skinneri* flower about May and June. Flowering so early there is time to make a good growth by the end of October, and then they also ought to rest through the winter up to the end of April. If such plants are constantly growing, there is some great mistake in their culture. The season of rest must be enforced, or no flowers will be produced. The way to obtain this rest is to lower the temperature of the house in which they grow to 45° by night and 55° by day, and also to lessen the quantity of moisture both in the air and at the root. When growing the heat should not exceed 65° to 70° in summer. The same treatment will suit *Dendrobium chrysanthum*, *D. densiflorum*, *D. oculatum*, *D. pulchellum*, *D. speciosum*, and all *Laelias*, the New Holland species; also all the species from Guatemala. If "A SUBSCRIBER" has only one house, he should place all his Cattleyas and the hardier Dendrobes, &c., at the coolest end near the glass. The Indian species of Orchids—such as *Aërides*, tender Dendrobes, *Saccolabiums*, *Phalænopses*, and *Vandas*—must have a higher temperature, even when at rest. The proper temperature for these genera is 60° to 65° in winter, and 70° to 85° in summer.]

USE OF THE VEGETABLE MARROW, GOURD, AND POMPION.

IN the absence of Apples, ripe Vegetable Marrows, Gourds, or Pompions offer a substitute more agreeable to the palate and constitution than many persons will imagine who have not tried them; and it is remarkable that in the present year (1859), when Apples are scarcer throughout the breadth of the land than has been known for many years past, that the whole family of Pompions, from the Mammoth Gourd to the small, delicate Custard Marrow, should the same season be distinguished for their greater abundance and more perfect maturity. Indeed, the circumstance appears traceable to an all-wise interposition of Divine Providence, to alleviate the disheartening loss of the Apple crop. The cause of this and similar failures of some other productions the last few years it is not our province to determine; but probably it has been the want of some hygrometrical character in the atmosphere.

Marrow, Gourd, or Pompion tarts, pies, and puddings consequently may be now reckoned amongst the leading pastry of the present day. To preserve the fruit, it should be slung in some airy and dry apartment, and it will keep till next summer if it has not been frozen. For tarts and pies this fruit should be first stewed with only a small quantity of sugar, and a few other simple ingredients, as candied Orange or Lemon peel, and a little nutmeg; but for puddings the stewing is not necessary. If it be well boiled, or baked thus, with the addition of about two ounces of Currants in each pie or pudding, it is acknowledged to be sufficient to make it pleasingly desirable for working people and their children (some of them say a small quantity of vinegar to give acidity to the fruit is good; but this we will not recommend). In fact, these substitutes will not disgrace a nobleman's table, nor give their cooks discredit if they use them instead, or with Apples in their mince pies at Christmas time. The Marrows and Gourds are, however, preferable to the old-fashioned Pumpkins, the flesh being yellow, much richer, and firmer.

Of the Mammoth Gourds, very many fine specimens have been grown and exhibited this season in various parts of the kingdom, some exceeding 100 lbs. each in weight; but there are two distinct kinds now common; the parents of the largest, we believe, were of the Portuguese origin, and have been exhibited in the windows of the most distinguished nurserymen in the metropolis, weighing upwards of 150 lbs. each.* We ourselves had a single plant this year, growing at the corner of one of our fields, running over hedges and ditches, without the aid of any manure or other stimulant, except water and a little extra cultivation by the fork, which produced in the short space of twelve weeks from its being planted, ending October 20th, when frost put an end to

* Edward May, Esq., Colebrook Street, Winchester, informs us that one Gourd grown there this summer weighed 220 lbs. !—EDS.

its growth, seven fruits, but from their lateness they were not more than half grown. Their united weights were 288 lbs.; two of them weighing 60 lbs. each. Its main branches were about twelve in number (and are reserved for inspection), measuring in length ten yards each, covering a circular space of twenty yards in diameter, or nearly 2827 feet and a half, or an area more than the sixteenth of an acre.

Moreover, the refuse need not be wasted, except the seeds, which we reject, having heard that they are of a poisonous nature (?), as pigs are remarkably fond of them if mixed with a little meal or offal. If our memory serves us right, Prince Albert once fattened a prize ox with them. Having ourselves grown a large quantity of the Marrows for pigs, we pulp them before mixing, and use them raw. Bentall's patented pulping machine is admirably suited for this purpose, as well as for pulping Mangolds and Turnips, and no stockmaster ought to be without one.—A. HARDY and SON, *Seed Growers, &c., Malden, Essex.*

LOOKING AROUND US.

1. CAMELLIAS FROSTED.—“The pots were like cannon-balls before we housed them. The leaves did not seem to suffer; but now the flower-buds are falling. How is this, when the Camellia will stand against a wall often without protection?” A Camellia in a pot against a wall would just be in a similar position. The only thing in its favour would be that, most likely, the frosted roots would thaw more regularly than in the case of these pots that you at once transferred to the greenhouse with the ball of earth frosted. Lay it down as a general rule that every plant in a pot out of doors, and that pot exposed, suffers more from all sudden changes and extremes of weather than if it had stood planted out in the natural soil. In the latter case only the surface of the soil would be frosted. There might be few roots there, if any; but in an exposed pot, every root round or near the sides of the pot would be more or less injured. If the pot were very soft and porous, the greater would be the cold produced by evaporation of moisture. The harder burned the pot, the greater would be the amount of cold produced by radiation and conduction. From these two causes combined, the roots in pots in frosty weather are exposed to far more cold than the plants could experience in the open ground, or with the pots sunk in the ground. In the latter case they would only be exposed to the temperature of the surrounding earth. In the former case, being exposed on every side, they would soon be of the same temperature as the air surrounding them. If, in a very severe night, a man were fixed to one spot in the open air, heat would radiate so quickly from his body that the sources of vitality would be exhausted. If, during the same night, he could be so completely covered with snow as to permit merely of breathing freely, he would not greatly suffer by his body being deprived of warmth. Some of our amateur friends act at times as if they felt that the merely keeping a plant in a pot is so far giving it a degree of protection. Standing in a pot just increases the dangers it is likely to experience from the heats of summer and the colds of winter. If partly plunged, even, it is more liable to danger than when in the open ground. If plunged, and the rims defended with litter, it is then in as favourable a position as when planted out and the surface so protected. If boxed in wood the plants would suffer less, because wood absorbs and radiates heat very slowly. In the present case the risk would have been less if the frozen pots could have been thawed slowly in a shady place. Even then, however, if the roots were much injured, the buds would be apt to drop before opening. The same prejudicial influence is often experienced in the case of hardy plants, when grown in pots and exposed to a severe frost. I have seen fine-looking Strawberry plants in pots prove next to unfruitful from the injurious influence of a severe frost; whilst plants of the same age and appearance, but planted out in rows before the frost came, bore fine and heavy crops the following year. If, therefore, a plant is grown in a pot, even if the plant is hardy, it is bad policy to expose that pot to the frosts of winter.

2. CINERARIAS FROSTED.—“Very fine plants have the edges of the leaves frosted. What can I do with them?” We fear our advice will come too late. If not too far gone, the only means of recovering them will be keeping them as cool as possible, and as dark as may be. A sudden rise in the temperature, and, worse still, a few rays of direct sunshine, will make it all up with them so far as elegant foliage is concerned. Without fine

foliage as the basis of the heads of bloom Cinerarias are but scarecrows at best. If the best foliage is destroyed at this early season it would be the best plan, in the case of fine plants, to break them up and commence growing afresh, by placing pieces in 60-sized pots and growing them on again. I remember being once caught by an unexpected frost: almost every leaf was stiff in the morning, but the frost had not penetrated far into the soil. Mats were thrown over the pit, and a thick layer of litter over that, as well as round the sides of the bed, to prevent the inside being much influenced by changes in the weather, either as respects heat or cold. In three days mild weather came, but the covering was kept on for two days longer. When the plants were examined then the frost was not quite gone, and the covering was kept on two days more; then, the weather continuing fine, a little air was given at the top of the sashes, with the covering still allowed to remain. By this time the leaves looked almost as well as they did before; but for two or three weeks, even when air was left on, a mat was thrown over the glass in sunshine. Had the plants been uncovered when the frost left us, or had they then been exposed to the light, they would not have been worth keeping. When the frost is more severe, so as thoroughly to destroy the tissues of the leaf, and also injure the roots, nothing can save them. At the same time another batch stood in a frame more exposed, and on which air had been left. The same methods were adopted with them, but not a plant, after all the care, was worth keeping. No plant, when growing in winter and spring, likes moisture and coolness better than the Cineraria; but to ensure vigorous health the temperature should seldom be below from 5° to 10° above the freezing point.

3. NEAPOLITAN VIOLETS FROSTED.—“We have some in a bed not at all injured. Those in pots and taken to the greenhouse are looking sickly, and the buds keep falling down instead of looking up boldly, even when we give them fresh watering.” See what is said above on Camellias and Strawberries.

4. LIFTED SCARLET GERANIUMS.—“I want some of these for centres of beds next season. I, therefore, stripped off the leaves, potted them singly in small pots; and though I water them, the points of the shoots keep dying back, especially in sunny days, and I perceive my object will not be answered.” In your case, you might have left more leaves, which would have kept up a reciprocal action. As it is, there is nothing to prevent your succeeding even yet. Try and plunge the pots in a little bottom heat, and that will encourage root action. Even then do not deluge the roots, but let the moisture be in proportion to the new-made and active roots. If you cannot so plunge the pots, let the earth be kindly dry rather than wet. In dull weather give a little air to prevent damping. In sunny days give less air when the stems are dry, but neutralise the drying effects by a slight shade, or, what we like better, a slight syringe over the stems. You will thus have the advantage of sun heat in encouraging growth, and the syringe will prevent the juices of the somewhat naked stems being exhaled. When fresh foliage comes success will be certain. If you allow these naked stems to be dried up, of course the object of saving them will be gone. This sprinkle from the syringe under such circumstances is worth ever so many delugings at the roots. In fact, the extra moisture there prevents the new roots forming and doing their proper work. As the weather is so uncertain at this season, let the syringing be given so early in the day, that what is not absorbed, so as to make or keep them plump, may be exhaled before night.

5. CYCLAMENS.—“Plants kept dryish all the summer are growing now. Shall I water and repot?” Undoubtedly water, so as to encourage free and healthy growth; but if, as you say, your plants are showing flower-buds freely, then I would advise to remove a little surface soil, and replace with rich and fresh compost instead of repotting, as the latter operation, though good for the plant eventually, might cause many of your earliest flowers to come weak and languid from the check received. As a general rule, plants in pots bloom best when the roots are touching the outsides of the pots.

6. GREENHOUSES ON MISTY DAYS.—“We have had some very misty days; thermometer from 35° to 40°. E. and W. say I ought to give abundance of air back and front. Are they right?” No; but see what is said in a late article on fires, &c. We have no desire, however, to be supposed to be incontrovertibly right on this matter. “I feel that my body does not like these cold misty vapour baths. I think my plants tell me plainly that they do not like it; they may tell other friends a different tale, but that is their pleading language to me,—‘Keep me out of it,

or keep it from me.'” If ever it gets into a house give a little heat, to change the mist to invisible vapour, and open only a little of the top ventilators when the fire is strongest to let the heated moisture escape; but keep every other cranny and air-hole shut to keep out the fog, and shut the small openings at the top early in the afternoon. Breathing over and over again during the night the same clear atmosphere will injure them much less than enveloping them in a cold fog bath. R. FISH.

THE VINES AT STOCKWOOD.

IN reading Mr. Fish's description of the Gardens at Stockwood in *THE COTTAGE GARDENER* of the 11th of October, page 21, in speaking of the fruit department, it is there said the present gardener thought the Vines were planted too deep, and had, therefore, raised them. Now this statement I can positively deny, being engaged there as foreman at the time the borders were made and the Vines planted. And the fact of their producing large thick leaves, and strong vigorous wood, well matured, producing every season a splendid crop of beautiful Grapes; and such Grapes, I say without fear of contradiction, could not be excelled, if equalled, in any part of Great Britain. Now the above description, which is quite a correct one, is not at all consistent with deep planting, as every one at all acquainted with Grape-growing must know. I therefore think it would be both unfair and unjust to the late gardener, Mr. Busby, to allow such a statement to pass without notice, knowing as I do that he was quite enthusiastic in shallow planting and root-pruning, and had practised it for more than twenty years, which all the fruit trees at Stockwood will prove, if their roots have not been disturbed.—WM. RATTRAY, *Byfleet*.

HOUSE AND TOWN SEWAGE.

No more striking monument remains as evidence of Roman wisdom than the sewers—the Cloaca—of their city. These are among the most ancient and most massive structures of Rome, and with the ruins of aqueducts, roads, and bridges, bear unmistakable evidence that the early Romans laboured chiefly to provide their city with public works of utility.

To the shame of Englishmen, on the contrary, be it recorded, that drainage is the last subject of consideration with them when either a public or a private edifice is constructed. It is to their shame, because it shows an ignorant neglect of a provision demanded by convenience, decency, and health; and still further is it to their shame, betraying, as it does, a wilful abandonment of the best and most economical fertiliser of their soils.

That it is the best of manures we testify after a very lengthened experience. We have tried it as a fertiliser in competitive experiments, and in every instance did it produce crops equal or superior to those dressed with either guano or stable manure.

We are glad to have Dr. Daubeny, Professor of Agriculture at Oxford, sustaining this result of our experience. “I conceive,” he says, “that our descendants will marvel at the inattention to chemical science evinced by the present generation of farmers in importing from distant regions, such as South America, substitutes—and those, perhaps, but imperfect ones—for that fertilising material of which the greater part is allowed to deposit itself unprofitably in the beds of our rivers.”

The extreme value of this fertilising material we shall particularise more fully hereafter, and will only now record this as a proved axiom:—

THE SEWAGE OF EVERY HOUSEHOLD IS MANURE SUFFICIENT FOR THE PRODUCTION OF ALL THE VEGETABLE FOOD IT CONSUMES.

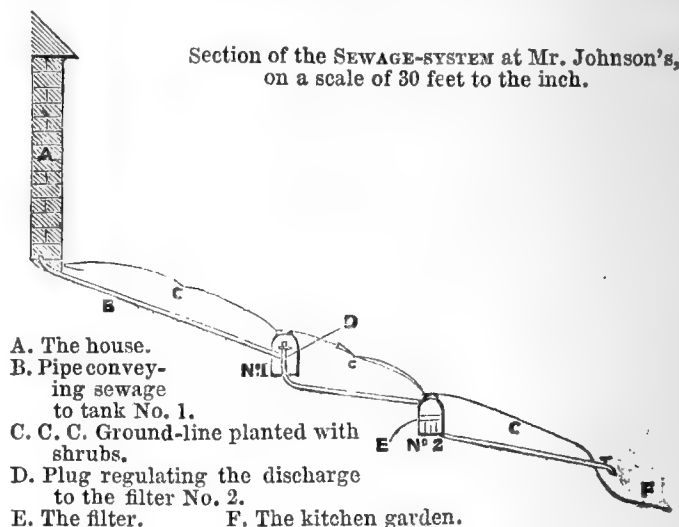
Unless the surface water arising from rains is kept separate from the sewage of a town, the vast bulk of needless water renders the carriage of the mixture almost a prohibition upon its distant use; but this objection has no force—indeed, does not exist to any detached house with a space of ground around it sufficient for the consumption of the sewage of that house.

The first important arrangement is—

THE COLLECTION OF THE SEWAGE.—If the house be on a very steep declivity it may be collected in the following mode, first adopted and thus described by Cuthbert W. Johnson, Esq., of Waldronhurst, near Croydon:—

“I have the advantage of a considerable fall between the house and the kitchen garden, yet that circumstance is not essential to the success of the plan: for even in the case of a perfect level, it would only be necessary to add a common iron lifting pump to the second tank; or the object might be accomplished by even

one tank only, if furnished with a division. My plan was to test the possibility of filtering the *entire* sewage of the house through a filter of sand sufficiently fine to remove almost all the mechanically suspended matters of the sewage, so as to render the filtered liquid available as a rich liquid manure, without being offensive to those who had the use of the garden. For this purpose I had two tanks constructed of bricks and mortar, and lined with Parker's cement, of about five feet cube each. Into the first, marked No. 1 in the annexed plan, *all* the sewage of the house is discharged through an iron pipe of 4½-inch bore.



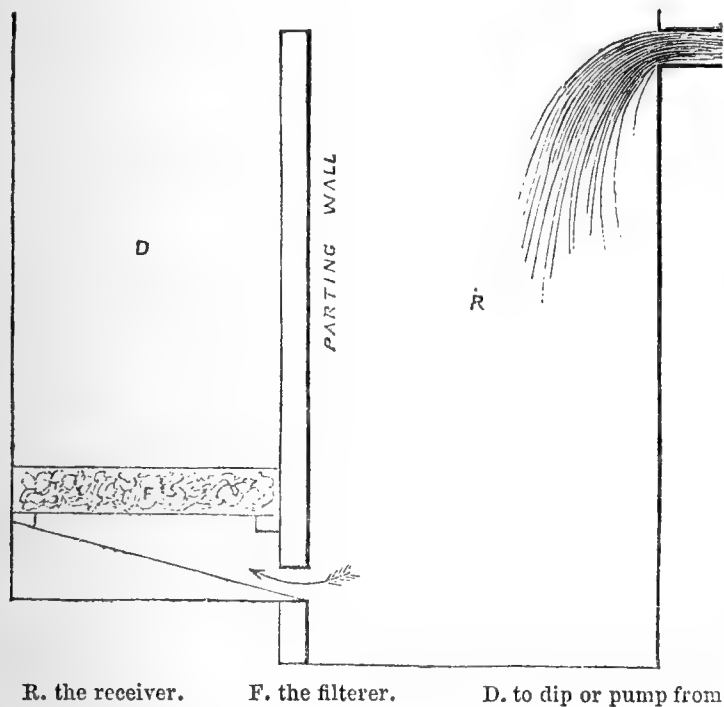
This tank is furnished with an iron pipe of the same diameter which (regulated by a long-handled plug from the top of the tank marked D) discharges the sewage as it is needed, from the tank No. 1 into the tank No. 2. This lower tank is also of a cube, equal to about five feet in diameter. This is furnished with a filter, through which the liquid portion of the sewage finds its way; and is thence drawn off from the bottom of the tank by means of iron pipes of three quarters of an inch bore to convenient places in the garden. The filter (E) is placed (resting on bricks) about eighteen inches from the bottom of the tank. The bottom of the filter is formed of perforated tiles used by malsters for their kiln floors; on this is laid a layer of gravel, about two inches thick; on this about two inches of coarse sand; and on the top of the sand (to prevent disturbance by the rushing in of the sewage from the upper tank) another layer of the maltsters' tiles. Thus constructed, the sewage finds its way through the filter with sufficient rapidity for the copious supply of the kitchen garden. As thus prepared the liquid manure passes through so as to possess but little smell, and without leaving any obnoxious appearance on the surface of the ground, I need hardly say that the effect of this liquid is exceedingly powerful; and we have noticed it as remarkably so in the case of some newly-planted beds of Asparagus and Rhubarb which have been irrigated with it. And, in fact, there is no doubt of its value for ensuring the rapid growth of all kinds of newly-planted culinary vegetables. I have so arranged the pipes in my kitchen garden that I can irrigate to any portion of it by merely turning a cock. This plan of filtering seems, in fact, to remove all the objections that can be possibly urged against the use of the house sewage. And in the case of gardens, both for the amateur and the poor cottager, I feel convinced that, by such a mode as this, many of the difficulties of incessant cropping and little-varied exhausting rotations may be successfully met. The waste of fertilising matter in such sewage is, in fact, so much larger than is commonly supposed (a loss by the ordinary mode of constructing these tanks disguised in every possible way), that I feel assured it only needs the adoption of some such a mode as that which I have described, of rendering its use no longer distasteful to the occupants of the house, to ensure its almost universal employment. The amount of sewage is much larger than is commonly understood; and in dry weather, when the demands of the gardener are larger, it is, we find, very easy to increase its bulk, in case of need, by pumping water into the tanks through the ordinary means.”

At another residence, also on a declivity, a series of connected 3-inch earthenware pipes conveys the entire house-sewage at once to a well situated as at No. 2 in the foregoing sketch. The well is brick-lined and cemented, is four feet in diameter and sixteen feet deep; no filter whatever is employed, and a common lifting

enables the sewage to be conveyed by gutters, or in a tub upon wheels, to wherever it is needed. The pump never chokes, nor is anything offensive ever carried on to the land.

In smaller establishments, and where the wellage being not so capacious, the sewage must be used more promptly—filtering might be desirable, and for this purpose the following simple arrangement was suggested in *THE COTTAGE GARDENER*, Vol. I., page 61:—

“The object might be accomplished by one tank only, if furnished with a division. Then, suppose a tank, five feet each way, and deep, with a four-inch division in it, and the communication to be at the bottom of the division-wall, and big enough to get a hoe through,—or say six or eight inches from the bottom of the part the sewage is to drain into, and then the bottom of the other part to incline about six inches on the three sides towards the communication-hole, and the filterer constructed as Mr. Johnson says, and resting on the top of the enclosed sides; the filtration would then be upwards, the sediment would sink to the bottom of the receiving-side, and the filterer would be less liable to choke. See the sketch below, on a scale of half an inch to a foot.



R. the receiver.

F. the filterer.

D. to dip or pump from.

Cemented brickwork would be more durable, there is no doubt; but two large butts would answer the purpose—the R one sunk to six or eight inches lower in the ground than the D one, with a communication-pipe at the bottom, with grating over the hole to prevent it from being choked.”—J.

(To be continued.)

PHALÆNOPSIS AMABILIS CULTURE.

THE geographical condition of Manilla, the natural habitat of the genus *Phalænopsis*, is characterised by two highly contrasted seasons; at one period subject to the parching influence of a vertical sun, and then deluged with almost incessant torrents of rain. In the latter season the plant forms new foliage, which eventually becomes the reservoir in the formation of an enlarged base, possessing the same functions as pseudo-bulbs.

It is the practice with many to grow this plant in a basket filled with the *débris* usually employed in potting Orchids, the result of which, to the discomfiture of the operator, is ultimately the death of this valuable but easily managed plant. Good billets of the *Quercus suber*, which have been cut and stored for upwards of two years, should be employed, the plant being fastened on with a little cut sphagnum moss wetted, and having a little good sharp silver sand mixed with it. Even these materials will in time wear away, when the plant, after being established, will luxuriate best upon the bare billet, and when in a growing state should be dipped into water of the same temperature as the house four or five times a-day, great care being taken to ensure around the plant a moist atmosphere, and a temperature from 80° to 85°; but during the resting season, which is, in a measure, the flowering season, the temperature should range from 60° to 65°. This truly fine species is extremely rare, and its flowers I

have retarded in perfect beauty for upwards of three months, but it is devoid of fragrance. It is identical with *Epidendrum amabile* and *Angræcum album majus* of some botanists. It is destitute of pseudo-bulbs, having glossy-green leaves four to five inches long, and about three inches broad, oblong; flower-spike about two feet long; flowers produced in panicles, and of a beautiful dazzling white; sepals about one inch long and half an inch broad, oblong, obtuse; petals nearly two inches long, about the same in breadth, suborbiculate, unguiculate, labellum three-lobed, the outer ones ovate, obtuse, incurved, base lutescent, the middle lobe has a pair of horns resembling the antennæ of an insect placed at the apex. The three lobes are splendidly marked with a purple, approaching mauve at the base of each.—J. RANSLEY TANTON, gardener to H. O. Nethercote, Esq., F.H.S.

REMOVING TULIPS, HYACINTHS, AND CROCUSES.

My flower-beds are full of bulbs—viz., Tulips, Hyacinths, Crocuses, &c., which have not been taken up for two or three years. Will it hurt them to take them up this winter, as I want to put fresh soil in the beds, and fresh plant them? Some of the bulbs have grown a good deal, I am afraid it might injure them to move them now.—A CONSTANT SUBSCRIBER.

[As Tulips, Hyacinths, and Crocuses cast their roots annually, and renew them every autumn, it will no more hurt them to be removed at any time till the end of February than our own bought “roots,” which we move every year, long after they have made all their roots. But as some of your bulbs among the “&c.” may be such as have perennial roots, you must be more careful with them. Yet there is no great fear or risk in so moving them, the renovation of the beds will make up all the difference.]

LONDON HORTICULTURAL SOCIETY.

It is with no ordinary pleasure that we are enabled to announce that the Council of the HORTICULTURAL SOCIETY have succeeded in securing the services of Mr. GEORGE EYLES, of the Crystal Palace, as the new superintendent of the gardens at Kensington Gore and Chiswick. It is needless for us to say one word commendatory of Mr. Eyles, and of his fitness for the appointment, as he is well known to be one of the best gardeners in the country. As a decorative gardener he stands, perhaps, unrivalled; and coming as he does with a well-tested reputation, we cannot but congratulate the Council and the Fellows upon the judicious and excellent choice that has been made.

With such a man at the head of the garden department, with Chiswick retained, with ample funds and unusually powerful patronage, there cannot but be, with good management, a glorious future for the Society. It starts afresh with an *éclat* and advantages such as it never had, even in its best days; and, if carefully conducted, it has a sphere of usefulness before it which, if it earnestly embraces and carries out, will raise it again in the confidence of the country, and enable it once more to take its place among the first of our national institutions. The gardening spirit of the country is still alive, and only wants an object round which to centre. The steps which the Council have just taken, and the feeling by which they seem to be animated, bid fair to make the Society that centre of attraction.

It is with great pleasure, also, we are enabled to announce that the whole amount of £50,000 for the construction of the new garden at Kensington Gore has been subscribed. This fact has been communicated to the Royal Commissioners of 1851, and steps have already been taken to prepare the lease and other preliminary matters, so that the works may be proceeded with forthwith. By the beginning of the year, therefore, we may hope to see the commencement of this great work. We have been favoured with a list of the subscribers to this fund, which extends to such a length as to preclude us from publishing it in our pages.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 87.)

PEARS.

FREDERIC DE WURTEMBERG.—Fruit large, obtuse-pyriform. Skin smooth, deep yellow, marbled and dotted with red on the shaded side, and of a beautiful bright crimson next the sun. Eye large and open, placed almost level with the surface. Stalk thick. Flesh very white, tender, buttery, and melting, rich, juicy, sugary, and delicious.

A remarkably fine pear, ripe in October. In the year 1858 it was as finely flavoured as the Jargonelle.

Gagnée à Heuze. See *Flemish Beauty*.

GALSTON MOORFOWL'S EGG.—Fruit below medium size, short obovate. Skin greenish-yellow, entirely covered with thin pale brown russet, and mottled with red next the sun. Eye open, set in a wide, shallow basin. Stalk about an inch long. Flesh yellowish, tender, sweet, and juicy.

An excellent Scotch pear with a peculiar aroma, ripe in the end of September.

Gambier. See *Passe Colmar*.

GANSEL'S BERGAMOT (*Bonne Rouge*; *Brocas' Bergamot*; *Diamant*; *Gurle's Beurré*; *Ive's Bergamot*; *Stanton*).—Fruit above medium size, or large; roundish-obovate, and flattened at the apex. Skin greenish-yellow on the shaded side, and reddish-brown next the sun, the whole thickly strewn with russet dots and specks. Eye small and open, set in a shallow basin. Stalk short and fleshy. Flesh white, buttery, melting, and very juicy, sugary and aromatic.

A fine old dessert pear, ripe during October and November. In warm situations it ripens well on a standard, but it generally requires a wall.

Garde Ecosse. See *Gilogil*.

GENDESHEIM (*Verlaine*; *Verlaine d'Eté*).—Fruit medium sized, obtuse-pyriform. Skin pale greenish-yellow, thickly covered with grey russet dots. Eye small and open, placed in a shallow depression. Stalk an inch long, inserted in a small cavity. Flesh buttery, with a rich sugary and somewhat musky flavour.

An excellent pear, in use during October and November.

GENERAL TODTLEBEN.—Fruit very large, pyriform. Skin yellow, covered with dots and patches of brown russet. Eye open, set in a wide furrowed basin. Stalk an inch long, set in a small cavity. Flesh with a rosy tinge, very melting and juicy, slightly gritty, with a rich, sugary, and perfumed juice.

A new Belgian pear, which fruited for the first time in 1855, said to be very excellent. In use from December to February.

German Baker. See *Uvedale's St. Germain*.

GILGIL (*Beurré Geerards*; *Garde Ecosse*; *Gil-ô-gile*; *Gobert*; *Gros Gobet*).—Fruit very large, roundish-turbinate. Skin yellowish in the shade and brownish next the sun, entirely covered with thin brown russet. Eye large, set in a deep and plaited basin. Stalk an inch long, deeply inserted. Flesh firm, crisp, sweet, and juicy.

An excellent stewing pear, in use from November to February.

De Glace. See *Virgouleuse*.

GLOU MORCEAU (*Beurré de Cambronne*; *Beurré d'Hardenpont*; *Beurré de Kent*; *Beurré Lombard*; *De Cambron*; *Colmar d'Hiver*; *Got Luc de Cambron*; *Goulu Morceau*; *Hardenpont d'Hiver*; *Linden d'Automne*; *Roi de Wurtemberg*).—Fruit above medium size, obovate, narrowing obtusely from the bulge to the eye and the stalk. Skin smooth, pale greenish-yellow, covered with greenish-grey russet dots, and slight markings of russet. Eye open, set in a rather deep basin. Stalk an inch and

a half long, inserted in a narrow cavity. Flesh white, tender, smooth, and buttery, of a rich and sugary flavour.

A first-rate dessert pear, in use from December to January.

Gobert. See *Gilogil*.

GOLDEN KNAP.—This is a very small roundish-turbinate russet pear, of no great merit. It is grown extensively in the orchards of the border counties and in the Carse of Gowrie; and, being a prodigious and constant bearer, is well adapted for orchard planting where quantity and not quality is the object. Ripe in October.

Got Luc de Cambron. See *Glou Morceau*.

Goulu Morceau. See *Glou Morceau*.

Gracieuse. See *Belle et Bonne*.

Grand Monarque. See *Catillac*.

GRAND SOLEIL.—Fruit large, roundish-turbinate. Skin very rough to the feel, entirely covered with dark-brown russet of the colour of that which covers the Royal Russet apple. Eye open, set in a pretty deep basin. Stalk an inch and a quarter long, thick and fleshy, swelling out at the base into the substance of the fruit. Flesh white, coarse-grained, crisp and very juicy, sweet and sugary, with a pleasant flavour. November.

Gratioli. See *Summer Bon Chrétien*.

Gratioli d'Hiver. See *Beurré Diel*.

Gratioli di Roma. See *Summer Bon Chrétien*.

Great Bergamot. See *Hampden's Bergamot*.

GREEN CHISEL.—Fruit very small, growing in clusters, roundish-turbinate. Skin green, with sometimes a brownish tinge next the sun. Eye large and open. Stalk three quarters of an inch long, inserted without depression. Flesh juicy and sweet.

An old-fashioned early pear, of little merit. Ripe in August.

Green Windsor. See *Windsor*.

GREEN YAIR.—Fruit below medium size, obovate. Skin smooth, dark green, changing to yellowish-green as it ripens, and strewn with patches and dots of russet. Eye large, open, and prominent. Stalk three quarters of an inch long, obliquely inserted. Flesh tender, juicy, and sugary. A good Scotch pear, ripe in September.

Gresilière. See *Fondante d'Automne*.

Grey Achan. See *Chaumontel*.

Grey Doyenné. See *Red Doyenné*.

Grey Goose. See *Gros Rousselet*.

GROOM'S PRINCESS ROYAL.—Fruit medium sized, roundish. Skin greenish, marked with russet, and with a brownish tinge next the sun. Eye small and open, set in a slight depression. Stalk short and thick. Flesh buttery, melting, rich, and sugary. In use from January till March.

Gros Gilot. See *Catillac*.

Gros Gobet. See *Gilogil*.

Gros Micet. See *Winter Franc Real*.

GROS ROUSSELET (*Gros Rousselet de Rheims*; *Grey Goose*; *Roi d'Eté*).—Fruit medium sized, obtuse-pyriform, and rounded at the apex. Skin of a fine deep yellow colour, with brownish-red next the sun, and thickly strewn with russet dots. Eye small and open. Stalk an inch and a half to two inches long. Flesh white, tender, half-melting, very juicy, vinous, and musky. August and September.

Gros Rousselet de Rheims. See *Gros Rousselet*.

Gros St. Jean. See *Citron des Carmes*.

Grosse Cuisse Madame. See *Jargonelle*.

Grosse Dorothée. See *Beurré Diel*.

Grosse Jargonelle. See *Windsor*.

Grosse Ognonet. See *Summer Archduke*.

Guernsey Chaumontel. See *Chaumontel*.

Gurle's Beurré. See *Gansel's Bergamot*.

HACON'S INCOMPARABLE (*Downham Seedling*).—Fruit above medium size, roundish. Skin pale yellowish-green, sometimes with a brownish tinge on one side, and

strewed with russety dots. Eye small and open, set in a shallow basin. Stalk an inch long. Flesh white, buttery and melting, with a rich sugary, vinous, and highly perfumed flavour.

An excellent hardy pear, in use from November to January.

(To be continued.)

SALE OF MR. FORTUNE'S PLANTS.

WE would call the attention of our readers to Mr. J. C. Stevens' announcement of the sale of Mr. Fortune's new plants from China, which is to take place on the 30th inst., and following day. It includes many plants of great interest and novelty, among which are the new *double-flowering Peaches*, some beautiful new *Camellias*, *Torreya grandis*, *Prunus triloba*, *Abies Kämpferi*, a new purple *Lilac*, and many other novelties which are destined to occupy a prominent place in British gardens and pleasure-grounds.

GARDENIA CULTURE.

"F. P. C." will be much obliged by being instructed as to what soil and management are best suited for Gardenias. The plant in question is the growth of four or five years. Last winter it was placed in a hothouse, which was constantly heated, and several flower-buds were formed; but all dropped off long before coming to maturity. A few young shoots are now showing; but the plant still looks weak and sickly.

[The dwarf sweet favourite "Cape Jasmine," as it used to be called, is the best ill-used plant in cultivation, the best flower to stand a London drawing-room of all woody plants, and the most difficult plant to put right when once it is on the road to ruin by bad management. Because the *Jacobæa Lily* would force into bloom among Pine Apples, our fathers put it down as a stove bulb; and all Lily-like bulbs had the same treatment till they all died under it. The next generation are forcing this *Gardenia* out of the world as fast as it will go; but a few knowing people increase and multiply it faster than the rest can kill it, and they make a good trade of it—so it will never be lost, though we should never have any of it to spare. A good *Fuchsia* will stand the heat of a Pine-stove, and grow there all the winter and spring for years, and be all the better, or all the sooner up to the mark for the shows, or for placing out of doors as a huge bush in summer. The *Flower of the Day Geranium* will pay better in a Pine-stove all the winter than the *Queen's* and *Cayenne Pines* themselves. Yet the *Fuchsia* and *Flower of the Day* are not stove plants: and if they so rested in winter that stove heat could not set them growing, the stove would soon ruin them, as it has done thousands of this *Gardenia*, which is exactly of the same hardiness as *Flower of the Day* with respect to winter, and three or four times hardier in actual frost; for seven or eight degrees of frost will not hurt the *Gardenia* much. Not one atom but the best peat to grow in, kept in a moist hotbed of stable-dung in spring up to the opening of the first bloom, to flower in a drawing-room as long as it will, to bring it back to a close cold frame till October, and to winter it like the *Golden Chain*, would make a splendid thing of it; but we never could cure it, and never did hear of one plant of it having ever yet been cured when once it went sadly. Some plants under fair treatment will go wrong; and when they do, force them hard for cut bloom, and then throw them away: cuttings root as fast as *Fuchsia* cuttings.]

THE PROTECTION OF SEEDS FROM BIRDS.

WHEN a garden is in proximity to cottages, stables, and stable-yards, the gardener is sure of being annoyed with those (then-termed) horrid little pests which are so destructive to his seed-beds—the Sparrow, Yellowhammer, Chaffinch, and many others of the numerous classes of small birds. Even in the most out-of-the-way gardens it has been found necessary to guard against their depredations. Some by covering the beds with small bushy sticks, small twine, or a scarecrow; while others entirely cover their beds with tiffany, garden-mats, or old fishing-nets. The latter certainly is the best for covering the beds, but not always at hand in sufficient quantities to suffice even for that kind of protection; but what I have tried this last summer I can safely vouch is a dead beat to any of the modes of protection that have

been hitherto practised, and the time that it takes, as well as the cost, is very insignificant. Here a neighbouring gardener told me that he had tried almost everything it was possible for him to try; but still, he said, the birds would have the seeds, and, what was most provoking, when he was within a few yards of them. Now, he says, they seem to be entirely outwitted, which he declared was quite a boon. Several of my brother gardeners around here with whom I am acquainted have tried the experiment, and with its results they seem highly delighted.

All seeds, of course, do not require protecting in the ground when sown; but those that do, which are all the different kinds of the Cabbageworts, and many others besides, I protect in the following easy and simple manner. Whatever kind, or as many of the kinds as I am about to sow, I do as follows:—I get as many small flower-pot saucers as I have different kinds to sow; then write on them the names of the seeds, which I immediately place in them. Then I put a small quantity of red lead (which is easily obtained from any painter's shop in the smallest quantity) into each of the saucers where I have before placed my seeds: then a few drops of water, when they are well stirred together, to be thoroughly besmeared over; then left until the next day to dry, when they will be in a fit state to sow. Every one must use his own judgment as to the quantity that is required, which must be determined by the amount of seed intended to be sown. If the seed is good when managed in this way the bed has never to be sown the second time, which is too often the case when all the usual protection is practised. If the seeds lie on the top of the ground, and a whole host of those small birds alight together, they seem to have a dread of them; and just as much after germination, when the seed is what is termed breaking the ground. This may appear strange; but still it is a mode of protection that may be fully depended on.—A. J. ASHMAN.

[This requires further experiments, we think, and it deserves them.—EDS.]

BRITISH POMOLOGICAL SOCIETY.

A MEETING of the British Pomological Society was held on Thursday last at the Hanover Square Rooms, London. Robert Hogg, Esq., Vice-President, in the chair.

The following gentlemen were elected ordinary members:—

DANIEL R. SCRATTON, Esq., the Priory, Prittlewell, Essex.
MR. THOMAS MEEKINS, Little Farringdon, Leeploode.

It was reported that Miss Burdett Coutts had placed the sum of £5 at the disposal of the Society, to be given as prizes to working men for the grown fruit under glass without the aid of fire heat. It was stated that Miss Coutts's object in offering these prizes is to encourage a taste for gardening pursuits, and the cultivation of fruit among the working classes. Mr. Rivers, of Sawbridgeworth, being present, stated that if any working men, desirous of competing for the prizes offered, erected glass structures, he would be happy to supply them with trees to furnish them.

Messrs. A. Henderson and Co., of Pine-Apple Place, offered two prizes of Three Guineas and Two Guineas, for the best and second best dishes of *Snow's Muscat Hamburgh Grape*, to be competed for in August, 1860.

A bunch of a Seedling Grape was received from Mr. J. S. Haywood, Lower Wick, Worcester. The bunch was rather small; Mr. Haywood stating that it was the last on the Vine, and that the others had been much larger. The bunch was of medium size and loose. The berries are round, of an enormous size, some of them measuring three inches and three quarters in circumference. This variety is of the *Black Hamburgh* race. The skin is thin, and, unlike that of the *Dutch Hamburgh*, is not astringent, nor does it adhere to the flesh. The flesh is tender, melting, and richly flavoured; and each berry contained one seed. It was considered a Grape of great merit, both on account of its quality and size; but before pronouncing a definite judgment, the Meeting requested that it be submitted again another season, and, if possible, in company with examples of *Champion Hamburgh*.

At this Meeting prizes of *One Guinea* and *Half a Guinea* were awarded for the best and second best dishes of *Passe Colmar Pear*. The first prize was taken by Mr. Parsons, of Welwyn; and the second by Mr. Judd, of Althorp Gardens. Prizes were also awarded for the best and second best dishes of any other sort; and the first was given to J. Moorman, Esq., of Boxhill, Sussex, for *Marie Louise*; and the second to Mr. Culverwell, of Thorpe Perrow, Bedale, also for *Marie Louise*.

A very excellent collection of Pears was sent by Mr. Webster, gardener to his Grace the Duke of Richmond, Gordon Castle, near Fochabers, N.B. This was interesting, as consisting of varieties which have hitherto been considered not to ripen in so high a latitude. They were all grown against a south wall: and among them were *Passe Colmar*, very fine and handsome; *Marie Louise*, excellent; *Beurré Diel*, most delicious; and *Fondante de Bois* or *Flemish Beauty*, large and handsome, but over-ripe. Each of these was superior to many other specimens of the same varieties grown in the south.

A prize offered for *Cornish Gilliflower* by Mr. Newton was not taken, there being no exhibition of that variety; and also one offered by Mr. Turner, of Slough, for *Cox's Orange Pippin*, was not taken for the same reason.

Prizes of *One Guinea* and *Half a Guinea* were also awarded for the best and second best dishes of any variety of dessert Apples. The first to R. Webb, Esq., of Calcot, Reading, for the old *Golden Pippin*, very fine; and the second also to Mr. Webb, for *Cockle Pippin*.

Messrs. Milne, Arnott, and Co., of Vauxhall, produced a basket of six fruit of a new seedling winter Cucumber, which was named the *Winter Prolific* Cucumber, from its property of bearing an abundance of handsome fruit during the winter months. The fruit is white spined, of a dark green colour, averages about fourteen inches long, is very straight, and of a uniform thickness of about an inch and a quarter throughout. The flesh is very solid, and of excellent flavour. It was considered a very valuable and useful variety.

TO CORRESPONDENTS.

POCKET CHESS AND DRAUGHTS.—A simple but convenient combination of these games has been submitted to us. A small box contains flat counters stamped with chess characters in gilt on one side, while the reverse forms draughtsmen. A folding-board is also enclosed. All goes easily into the pocket; and may be had free by post for seven stamps of Mr. Beal, 4, Grove Terrace, West Ham, Essex, E.

WINTERING CALCEOLARIAS AND VERBENAS (*A Subscriber*).—You can keep them very safely in a cold pit with half-brick-thick walls. You did quite right with the frosted Geraniums; but you must be very watchful over them in the cellar. We have repeatedly given directions about this. Consult our indices. What do you wish to be told about growing Sea-kale? Buy our "Garden Manual," it gives the whole routine.

INFORMATION NEEDED.—Who is JAMES INGRAM, of some place in Maidstone, who is writing to various ladies, enclosing packets of seeds, requesting that they may be taken as an act of charity; and then, when they have been taken and paid for, writes again for payment?

SMALL GAS-HEATED BOILER (*G.*).—If you made the cylinder air-tight which encloses the gaslight this would not burn. Why not have an iron bottom fixed to the cylinder, and a pipe from the side communicating with the outer air to support the burning of the gas? Of course we are only guessing at what might be done, for we have no particulars as to your arrangements. We know of several gas-stoves and gas-heated boilers, producing no offensive smell. They have a good supply of air from the outside, and a tube or chimney to carry off the fumes into the open air.

HARDY HERBACEOUS PLANTS (*Excelsior*).—You may choose from the following, they will all do for exhibiting:—*Achillea tomentosa*, *A. rosea*, *A. Eupatorium*, *A. ptarmica plena*; *Aconitum speciosum*, *A. versicolor*, *A. variegatum*; *Alyssum saxatile*; *Anemone apennina*, *A. sylvestris*, *A. pulsatilla*, *A. Japonica*; *Anthericum liliastrium*; *Aquilegia Canadensis*, *A. glandulosa*; *Arenaria grandiflora*; *Asclepias tuberosa*; *Aster alpinus*; *Astrantia major*; *Aubrietia purpurea*; *Betonica grandiflora*; *Campanula Carpatia*, *C. Carpatia alba*, *C. glomerata alba*, *C. speciosa*, *C. pumila*, *C. azurea*, *C. persicifolia plena*, *C. persicifolia maxima*, *C. trachelium rubrum plenum*; *Cardamine pratensis plena*; *Centranthus rubra*; *Cheiranthus Marshallii*; *Chelone barbata*, *C. obliqua*; *Delphinium formosum*, *D. grandiflorum plenum*; *Dianthus Garnieranus*, *D. superbus*; *Dictamnus fraxinella*, *D. albus*; *Dielytra spectabilis*, *D. formosa*; *Digitalis ferruginea*; *Dodecatheon Meadia*, *D. elegans*; *Erythronium dens-canis*; *Draccephalum grandiflorum*, *D. Virginaceum*; *Funkia lanceolata*; *Gentiana asclepiadia*; *Geranium Ibiricum*; *Geum coccinea*, *G. Chilense*; *Gnaphalium arenarium*, *G. margaritaceum*; *Helianthus multiflorus plenus*; *Hesperis matronalis plena*; *Inula glandulosa*; *Liatris spicata*; *Lithospermum purpureo-ceruleum*; *Lobelia syphilitica*; *Lupinus polyphyllus*; *Lychnis Bungeana*, *L. Chalcedonia plena*, *L. viscaria plena*; *Lysimachia verticillata*; *Matricaria grandiflora*; *Melittis grandiflora*, *M. melisso-phyllum*; *Mimulus cardinalis*; *Monarda didyma*, *M. purpurea*; *Myosotis Azorea*, *M. alpestris*; *Oenothera splendens*, *O. fruticosa*, *O. glauca*, *O. Frazerii*, *O. speciosa*, *O. macrocarpa*, *O. prostrata*; *Papaver bracteatum*, *P. orientale*; *Pentstemon campanulatus*, *P. azureus*, *P. digitalis*, *P. Murreyanus*, *P. ovatus*, *P. procerus*; *Phlox divaricatus*, *P. Nelsonii*, *P. subulata*, *P. procumbens*, *P. setaceus*; *Potentilla Macnabiana*, *P. Garnieriana*; *Pyrethrum Parthenium plenum*; *Ranunculus aconitifolius plenus*, *R. gramineus*; *Rhodola rosea*; *Rudbeckia hirta*, *R. purpurea*, *R. columnaris*; *Salvia azurea*; *Saxifraga granulata plena*, *S. crassifolia*, *S. cordifolia*, *S. cotyledon*; *Sedum oppositifolium*, *S. populifolium*; *S. sexangulare*, *S. ternatum*; *Silene Shaftii*, *S. maritima plena*; *Spiraea Japonica*, *S. filipendula plena*, *S. venusta*, *S. ulmaria variegata*; *Statice latifolia*, *S. sinuata*, *S. tartarica*, *S. speciosa*; *Stenactis speciosa*; *Thalictrum aquilegifolium*, *T. purpurascens*; *Tradescantia Virginica plena*; *Trillium grandiflorum*; *Verbascum Phoeniceum*; *Veronica elegans*, *V. laciniata*, *V. incana*, *V. candida*, *V. latifolia*, *V. maritima*, *V. spicata*; *V. australis*; *Vinca herbacea plena*; *Viola montana*, *V. cornuta*; *Phyteuma Hispanica*; *Prunella Pennsylvanica*.

A RIBBON-BORDER (*E. T.—Dublin*).—In England a lady thus taking time by the forelock would not be considered a novice; but you may lose the fashion for next season. The latest pattern we have seen looked very beautiful. The first nine inches of the border were of *Cerastium tomentosum*; the next nine of *Lobelia speciosa*; the next fourteen of a pretty dwarf variegated Geranium of the Nosegay section; the next twenty inches of *Calceolaria aurea floribunda* ditto, and two feet of *Tom Thumb*. Nothing more cheap, more gay, or more easily managed have we seen this season. The Cerastium was from March cuttings; the Lobelia from seeds sown at the end of March—and both planted at six inches apart, in two rows each. The rest were dwarf, nice, bushy plants; and the border was soon quite covered. The colour of the flowers of the dwarf variegated Geranium was cerise.

NAME OF GRAPES (*J. W.*).—The Grapes you sent are *Black Morocco*, and require more heat than what is furnished by an ordinary vinery.

NAMES OF PLANTS (*A Young Beginner*).—The bulbous flower is *Vallota purpurea*, var. *minor*. Treat the plants just the same as though not frost-bitten; only be more sparing with the waterpot, owing to the leaves having been injured. Prune, stake, and tie up the Raspberries without delay, and top-dress as you say. (*Mrs. C. B. Clough*).—The little evergreen shrub with sharp-pointed leaves is the *Pernettya mucronata*; the other is the "Groundsel Tree," or Ploughman's Spikenard Tree, *Baccharis halimifolia*. This is a shrub but very rarely seen in gardens. We know of no Begonia of a name at all resembling that you mention. (*Clericus*).—Your plants are—1, *Loasa lateritia*; 2, *Swainsonia coronilifolia*; 3, *Linanthus dichotomus*, a hardy annual from California; 4, *Lysimachia nummularia*, the common Moneywort. (*W. H.*).—The Oak leaves are from the Quercitron Oak, *Quercus tinctoria* and *Q. discolor* of Willdenow. No one could detect what is the specific name of your Cactus from such a fragment. (*An Amateur Gardener*).—From a mere leaf it is always difficult to distinguish the name of a plant, and it is only after repeated references that we find your plant is called *Caladium argyrites*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

NOVEMBER 19th to 23rd. CRYSTAL PALACE. (Canaries and British and Foreign Cage Birds). *Sec.*, Mr. W. Houghton.

NOVEMBER 28th. STEEL BANK, SHEFFIELD (Single Cocks). *Sec.*, Mr. F. Wragg, Steel Bank, Sheffield. Entries close the 26th of November.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. BIRMINGHAM. *Sec.*, Mr. J. Morgan, Bingley Hall, Birmingham.

DECEMBER 13th. NEWPORT (MONMOUTHSHIRE). *Sec.*, Chas. H. Oliver, Commercial Street, Newport, Monmouthshire. Entries close Nov. 30th.

DECEMBER 28th and 29th. SHEFFIELD AND HALLAMSHIRE (Fancy Pigeons). *Sec.*, Mr. Inman New, Sheffield. Entries close December 12th.

DECEMBER 28th and 29th. POULTON-LE-FYLDE. *Sec.*, Mr. J. S. Butler.

JANUARY 4th and 5th, 1860. PRESTON AND NORTH LANCASHIRE. *Sec.*, Henry P. Watson, Old Cock Yard, Preston. Entries close December 17th, 1859.

JANUARY 7th, 1860. BRADFORD. (Single Cock Show.) *Secs.*, Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford.

JANUARY 31st and FEBRUARY 1st and 2nd. CHESTERFIELD AND SCARSDALE. *Hon. Secs.*, Mr. J. Charlesworth, and Mr. T. P. Wood, jun.

FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). *Sec.*, Mr. W. Houghton. Entries close Jan. 14th.

N.B.—Secretaries will oblige us by sending early copies of their lists.

BIRMINGHAM AND LIVERPOOL POULTRY SHOWS.

AGE has its advantages. When we speak of our country we call her "old England;" it is a term of endearment. The London pavior, who, to begin work at six, rises at five, and who, a few minutes before eight, feels the want of his breakfast, looks for the clean but homely figure who approaches with the yellow jug full of smoking tea and the slices of bread and butter, and, seating himself on the earth he has been throwing up, addresses his partner, who often makes him feel there are many worse off than himself, with—"Well, old gal." When the parting comes between the two school friends, and they have been friends, the shake of the hand is accompanied with "Good-bye, old fellow." But age is not only a term of endearment; it implies, in most instances, stability, and challenges respect. Thus, from the MacTavishes, who were not in the ark because they had a little boat of their own at the time, down to the jam-pudding shop established March, 1858, all refer to their antiquity as an advantage.

Well, then, our old mother or father at Birmingham (we know not the gender of a poultry show), the great parent of all such gatherings, has issued her invitation-cards. She will be at home on the 28th, 29th, and 30th of November, and 1st of December. This is the eleventh annual meeting. In this case age should certainly bring respect, the more so that there are no peccadilloes to be overlooked, no offences to be forgotten, no unkindnesses to be forgiven. Those who conduct have gone steadily on, even when things did not look bright and cheering. They have held

the balance with a firm and impartial hand, and have sought no reward but that of having done good to agriculture, poultry, and their town—they deserve, then, every support, and we trust they will meet it. Those who afford it, however, have money's worth. There is no other place in the United Kingdom where cattle may be seen in perfect comfort. Every animal has a stall as large as a loose box. The space between the rows is so great, and the cleanliness so well attended to, that the most fastidious lady may walk through it all without crowding or annoyance. And then the poultry! That is the show of shows. Fifteen hundred pens, almost all filled with perfect specimens! The space, cleanliness, and height of the building make it so different from any other exhibition that we are sure, if any are induced by our remarks to visit it, they will thank us and respect our judgment evermore.

We take a great interest in what is called in our parish "the children's treat"—half-a-dozen vans loaded inside and out with school children. The beadle *en grande tenue* shares the box with the first coachman; a sort of second beadle honours the second; a bugle the third; a cornet the fourth. Some aspiring boys mount the roof and waive union jacks, and thus they start to the Rye House. How they enjoy themselves! How they shout! What lungs, and what appetites! But the day comes to an end. As they pass along the streets they cheer and cheer, but when they are deposited at the workhouse—the head-quarters of the school—when they are no longer riding, they "faintly get up the ghost of a cheer," and then it dies.

"Why, my little man," said we, "how is it you are so dull?" "So long, Sir,—twelve months to wait for another treat, not even a little one till then —." If we had only Birmingham, we should feel like the boy, but we are more fortunate. We are always sorry when it is over at Bingley Hall, but we have others to look to; and it is now our duty to call attention to the programme of another *old* lady or gentleman, son or daughter of the other, and now aged seven years—the Liverpool Poultry Show. This, as is well known, is the most liberal prize-list ever offered, because the space at the disposal of the Committee is so limited, they can receive but a small number of entries. Here, also, is seen the matchless sight of a hundred Game Cocks, the picked birds of England, drawn together for prizes of £40, £20, £15, &c. This Committee has every claim to the support and thanks of amateurs. Every member of it holds himself personally liable for the payment of the prize money. Certain classes not having been numerously exhibited, the Committee distribute all the entrance money, less five per cent., among the competitors; and if more than four pens are entered, two prizes are given. There are sweepstakes for all breeds for single cocks, and there is that class which we have only yet seen at Worcester, and which is so attractive—viz., Game Bantam Cocks. There are also special prizes, £5 for the best pen of Bantams, and £5 for the best pen of Ducks. Like Birmingham, the Liverpool Show is distinguished for its punctuality and straightforwardness; but, unlike it in another respect, it cannot take an unlimited number of entries. It has been called the "combat of the giants," and those who would take part in it should apply early.

CROSS-BREEDING—ANDALUSIANS.

I HAVE been a breeder of fowls for forty years, and I have experimented on the different breeds by crossing, to endeavour to ascertain, if possible, which would produce the best layers, or other properties, either for table or beauty of plumage. I have tried Dorking and Cochins, and got very good table fowl; also a Black Hamburgh cock and Spangled hens, and I had beautiful plumage, and very good layers to boot.

I have this year a cross between a White Andalusian cock and Black Spanish: the produce are all blue—the colour of a blue Pigeon; and, although hatched on the 23rd of May, the pullets have begun laying above a fortnight ago.

I am at a loss to know in what class to enter them; for I intend to show them at the next Liverpool meeting. I think they are most like Blue Andalusians, but better in colour and harder in plumage than any I ever had or ever saw.—JOHN HARTLEY.

[We do not know the White Adalusians. Birds of that breed are always blue. You have probably bred between White and Black Spanish, and the result has been to produce Andalusians. It would be as curious, if it were so, as the production of Black Cochins by the cross between Whites and Buffs, and would

settle a question that has long been in dispute—viz., whether Andalusians were a distinct breed; and if they are not, how were they produced? They should be entered as Andalusians.]

FATTENING COCHIN-CHINA FOWLS, TURKEYS, AND DUCKS.

"A SUBSCRIBER" would be much obliged by information as to the best mode of fattening Cochin-China cockerels and other young fowls. He put a dozen of the former into a coop early in October; fed them regularly on boiled potatoes, steamed rice, and oats; and their breast-bones are still as sharp as the back of a knife.

He would also be obliged by information as to the best mode of fattening young Turkeys and Ducks. They have been fed in the same way, at large in a yard, and do not take flesh.—DUNENSIS.

[If it is endeavoured to ascertain the degree of fatness of a fowl by passing the finger along the breast-bone, it will always appear the bird is thin, as the bone is never covered except with the skin. The flesh never hides it, or alters it in any way. In fattening fowls the first care should be to allow them as little room as can be—just enough for the number to stand up, but not enough for anything like exercise. If four are allowed the same space that would serve for a dozen they will not fatten; therefore a space of the fatting-coop should be divided off, and this should, we repeat, allow them only room enough to stand. Their food should be ground oats mixed with milk; it should be given three times per day, and be mixed of such consistency that when it is laid on a board it will not run off. Taking that as the limit, it cannot be too slack. Nothing is so essential as that they should be fed at daybreak. If they are not they waste, during two or three hours' pining, all the good done by the food of the previous day. The coop in which they are fattening should be covered with old carpets, sacks, or anything of the kind, for the sake of quiet and warmth. If fowls are doing well and making progress they should be hot, and the heat of the coop should be perceptible to the hand before the birds are touched. These latter should be soft-feathered, and the skin should be moist from heat. Treated in this way, they should fatten in three weeks. The food you have used is not good enough. Potatoes are apologies, rice is positively bad, and whole corn useless if it is intended to fatten. Grind your oats; feed thrice per day, especially at daybreak; give no more than will be eaten at each meal; keep them in close quarters; cover them up; let them be quiet. If you follow these rules your fowls will fatten.]

PURITY OF COLOUR IN POULTRY.

I HAVE seen it mentioned in THE COTTAGE GARDENER, that it is stated breeding true to colour is a sign of purity of breed; and it has been, therefore, argued that because some yards of Brahmas on which much care has been bestowed have bred true to colour, they must necessarily be a pure and distinct breed. From my own experience I should regard the breeding true to colour to depend much more on the careful selecting by the amateur than on the original purity of the breed.

Sir John Sebright is reported to have said he could breed any colour in three years; and, I believe that any common or natural mixture may, by carefully breeding for three generations, be brought to reproduce its like, and will, year after year, continue to breed more correctly so long as the stamina of the stock is kept up. But should the breed degenerate by in-and-in breeding, out will pop the cross; which has been known to happen sixteen or twenty years after. Very few, if any, of our so-called pure breeds would resist the effects of in-and-in breeding for three generations. But are we, therefore, to set down as pure bred any cross or mixed colour because it has been carefully bred for three or more years, and, therefore, will reproduce its like as long as the vigour of the breed is maintained? I think not. Allow me to refer to the Game fowls. All the various colours are only sub-varieties of one breed: of these there are two primitive colours—viz., Reds and Duckwings, and these are, consequently, entitled to be called pure colours. To these may be added three whole colours, as Blacks, Blues, and Whites or Smocks; and when these are bred quite free from any mixture, I think they also deserve to be classed as pure colours. But cock-fighters, like horsemen, have always held that a good

bird could not be of a bad colour; and as pluck was above all, and only to be maintained by the judicious introduction of fresh blood, crossing was resorted to without regard to colour—so that we have an infinity of mixed colours or crosses, many of which have been long bred, as, for instance, the Piles, which in some parts of England were much prized. The Reds and Duckwings were most generally acknowledged as the staunchest, and a cross between them was extensively bred for purposes of the pit. But to distinguish these from the pure-coloured Duckwings, it was found necessary to give them a prefix to their names, and such red, or copper-saddled Duckwings, were known in the cock-pit, as Birchen Ducks, Berry Birchen Ducks, Ginger Ducks, &c., the pure Duckwings being frequently called Greys from the colour of the hens. Thus a cross between a White and any other colour produces a Pied, or Pile, and in time these will also breed true to colour, and so will many other mixtures.

Few amateurs have the convenience to attempt the establishment of a variety, because it would require several distinct families of fowls to breed from to produce the same mixture, and by crossing their selected young ones to perpetuate the coveted colour without breeding in-and-in. For to do so for only three generations would entail the breeding from eight distinct pairs of fowls; by coupling their young the first year they would be reduced to four pairs; the second year to two pairs; and in the third year the produce would contain the blood of the eight original first-crossed birds. At this point the birds would breed true to colour; but if allowed to degenerate by in-and-in breeding the birds would throw back, which will also happen from some other cause. Indeed, all poultry fanciers are aware that sometimes a curious-coloured chick appears among their broods, which they cannot in any way account for. While others can relate, that having taken a fancy to some colour, and having selected such for breeding purposes for several years, they, after a time, rarely have a chicken of any other colour, especially if it is a natural mixture; but if a fancy marking is attempted, as accurate lacing, or spangling, it will take the labour of many fanciers and a much longer period to accomplish.

From the foregoing, I think it will be gathered that breeding true to feathers does not constitute either a pure colour or a distinct breed.

A Pile, a Red Dun, or a Birchen Duckwing, may be so bred, and are bred, as to reproduce their like very constantly. But this only entitles them to be called a distinct sub-variety, and does not establish them either as a pure colour or a distinct breed.—B. P. BRENT.

CRYSTAL PALACE BIRD SHOW.

THE annual Exhibition of Canaries and British and foreign cage birds commenced on Saturday, and will be continued until Wednesday, in the tropical department of the Palace. We shall give a full report next week. Below we give a list of the principal prizes:—

CANARIES.—*First Prizes*, Class 1, Mr. F. Willis; 2, Mr. W. Aldis; 3, Mr. J. Pinnington; 4, Mr. J. Ilton; 5, Mr. H. Marshall; 6, Mr. O. Nicholson; 7, Mr. E. Hawkins; 8, Mr. E. Hawkins; 9, Mr. E. Hawkins; 10, Mr. R. Wilde; 11, Mr. J. Stevenson; 12, Mr. J. Stevenson; 13, Mr. F. Hook; 14, Mr. F. Hook; 15, Mr. J. Lingard; 16, Mr. W. Arthur; 17, (second), Mr. R. Wilde; 19, Mr. W. Minns.

BRITISH BIRDS.—*Prizes*, Class 20, Mr. E. W. Major; 21, Mr. E. W. Major; 22, Mr. E. W. Major; 23, Mr. E. W. Major; 24, the Hon. A. Willoughby; 25, Mr. E. W. Major; 26, Mr. H. Hanly; 27, Mr. E. Hawkins; 28, Mr. E. Hawkins; 29, Mr. H. Hayman; 30, Mr. A. J. Moore; 32, Mr. C. Hutt; 33, Mr. H. Bayman; 36, the Hon. A. Willoughby; 37, Mr. J. Beach; 38, Mr. W. Bicknell; 39, Mr. E. W. Major; 42, Mr. H. Bayman; 43, Mr. C. Miles; 44, Mr. C. F. Staunton; 48, Mr. H. Bayman.

GREY PARROTS.—*Prize*, Class 50, Mr. J. Secley.

GREEN PARROTS.—*Prizes*, Class 51, Mr. W. Ryder; 52, Mr. W. W. Westbrooke; 54, Miss F. Croad; 55, Mr. R. M. Clark; 56, Hon. A. Willoughby; 60, Mr. A. E. Davis; 61, Mr. A. S. Davey; 64, Mr. E. Hawkins; 65, Mr. E. Hawkins; 68, Mr. E. Hawkins; 69, Mr. E. Hawkins; 78, Miss C. Bartlett; 79, Mr. E. Hawkins; 80, Miss J. Bartlett.

HONEY SEASON AT WOODSTOCK.

I HAVE taken of honey, in glasses and straw supers, from two of my hives this season, 51 lbs. nett. Our parish clerk and a lady of this place, seeing my annual success, have begun bee-keeping upon the plan I have adopted, and had a proportionate success this year. The clerk treated himself to a holiday, and took the greater part of his (and, I believe the lady's) honey

to London, and sold it very well, considering the overflow that was sent there this season; though most of the samples I saw there were very thin. The greater part of our honey is annually disposed of at Fortnum and Mason's, though this year I kept my best samples to exhibit the hives with at our Show. The rector goes to town for the Summer Crystal Palace Poultry Show, and then the honey is taken to Piccadilly, and unpacked under my own care. It always pays our travelling expenses to London and back; and at the year before last's Poultry Show it paid part of our expenses at the Queen's Hotel, Norwood, where we stayed two days, into the bargain.

I am in my eighth year of apiarism; and my object for part of that time has been to carry out a system specially adapted for cottagers, which tends towards a minimum of hives with strong colonies, simple and easy of management, and, withal, inexpensive.

I have had but two hives this year (never more than three) working for deprivation; and I purpose to send you my practice next year, by which time I think my operations may be beneficially printed. It is tempting to rush to conclusions about these interesting little favourites, but invariably, in that case, much is said that has to be contradicted. And really their wonderful ways and workings do seem infinite—UPWARDS AND ONWARDS.

BEESWAX.

I MADE some remarks in the last volume on the decrease of wax in old combs. Since then I have observed the following statement, said to be from Dr. Dunbar, that "the wax in a full hive of the current season is nearly 2 lbs. of the preceding year, perhaps 3 lbs." I think there must be a mistake somewhere, for that good apiarian must have known that no wax is added to a full hive, except for slight repairs, sealing up the combs, and sometimes a little to lengthen the honey-cells, but never those for brood. Whereas, by that statement, a pound of wax is equal to half the quantity which filled the hive with combs the previous season. This is not only absurd, but the whole quantity of wax seems to be overrated. However, while on this subject, I may notice that I was taunted for having said that bees collect the materials from plants to secrete wax. It is now some years back since I made similar observations on this curious subject, and the following extracts from a paragraph in a newspaper shows that I do not stand alone, as "B. & W." stated:—

"It may seem marvellous that wax should be produced by a tree, yet it is not more so than that the bee should collect that lying like dew within a flower. The insect only elaborates the materials already in existence. A large portion of wax consumed in the United States is obtained from a tree, which is most plentiful in Pennsylvania. . . . To extract, the berries having been collected in bags, are immersed in boiling water, when the wax exudes, and is skimmed off from the surface of the water. Analysis proves that it is almost identical with common wax. . . . The French have introduced the *Myrica* into Algeria, where with care it will probably furnish, in time, an important article of commerce."

Those extracts somewhat agree also with what I advanced on wax being found or extracted from Irish peat bog.—J. WIGHTON.


OUR LETTER BOX.

SUPPLY OF EGGS (*A. O. Z.*).—As you only require eggs, and do not intend to exhibit, keep six hens—two Cochins-Chinas, Partridge-coloured; two Black Spanish; and two Silver-pencilled Hamburgs. The roosting-place you propose will answer, and the run, though it need not be covered entirely, would be all the better if one end could be kept dry and well supplied with sand and limy rubbish. Buy our "Poultry Book for the Many," the sixpence you give for it will obtain you all the information you need.

GOLD AND SILVER PHEASANTS (*Wilmslow*).—Your birds must be kept separate. Alter the height of your house, and make it six feet from the flooring. They will breed in such a place as you describe. Let the bottom of the house be covered with dust or fine gravel three or four inches thick. It is good for the birds, and saves many eggs from being cracked when laid. One hen is enough for each cock; but you may put more if you like, limiting the number to three. It is necessary to watch the cocks closely when fresh hens are turned down, as they often kill them. The eggs must be collected as soon as possible after they are laid, as from wantonness the cock will at first peck them, and, having tasted them, not only eat them himself, but teach the hens to do the same.

TIL SEED (*T. P. Wimborne*).—This went the round of the newspapers some months since, and we said all that need be said about it in our No. 473, page 40. Do not rely upon anything but sugar and honey for bee-feeding.

WEEKLY CALENDAR.

Day of M th Week.		NOVEMBER 29—DECEMBER 5, 1859.	WEATHER NEAR LONDON IN 1858.					Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.							
29	Tu	Phylica pinea.	29.205—29.103	52—42	S.	.01	42 af 7	54 af 3	24 8	5	11 36	333	
30	W	St. ANDREW.	29.317—29.203	46—39	W.	.02	44 7	53 3	35 9	6	11 15	334	
1	Th	Andersonia sprengeloides.	29.749—29.633	50—38	W.	.02	45 7	52 3	46 a 10	7	10 53	335	
2	F	Acacia armata.	29.945—29.634	50—25	S.W.	.02	47 7	52 3	56 11		10 30	336	
3	S	Acacia juniperina.	30.097—30.030	50—43	S.W.	.01	48 7	52 3	morn.	9	10 6	337	
4	SUN	2 SUNDAY IN ADVENT.	29.948—29.862	50—35	S.W.	.01	50 7	51 3	4 1	10	9 42	338	
5	M	Narcissus.	30.149—29.965	50—27	N.W.	.00	51 7	51 3	15 2	11	9 18	339	

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 47.6° and 35.2°, respectively. The greatest heat, 62°, occurred on the 1st, in 1857; and the lowest cold, 14°, on the 30th, in 1856. During the period 114 days were fine, and on 110 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

EVERY endeavour should now be made to keep these houses as gay as possible. Fire-heat to be applied occasionally during dull, dark, or rainy weather, taking care not to raise the temperature too high—say greenhouse from 50° to 55° by day and from 40° to 45° by night; conservatory 60° by day and 50° by night. Chrysanthemums to be removed as soon as they get shabby, to be succeeded by early Camellias. The *Euphorbia jacquini-flora* is well worthy of attention now; it requires but a very moderate allowance of water at this season, as the least saturation or interference with the root action will cause the leaves to turn yellow while the plant is in flower. *Poinsettia pulcherrima* is also worthy of particular attention as a noble ornamental flower at this season. The old *Plumbago Capensis* and *rosea* still retain their places amongst our best plants at this season. Acacias and Cytisuses, being yellow and showy, give, with the other flowers, a variety of colours to beautify the whole. *Gesnera zebrina* should not be forgotten; the elegant markings of the leaves contribute to enhance the beauty of this beautiful winter flower.

HEATHS.—As fire-heat is generally injurious to this tribe of plants it is advisable to be very cautious in its application. They can bear a good deal of cold and some degrees of frost without sustaining any very serious injury; but they cannot bear the drying influence of fire-heat without serious damage to their foliage, and which is very frequently death to the plants. They will require but very little water, especially the large specimens, which should be very particularly examined as to their state of dryness or otherwise, as a guide to the application or withholding of water. An abundance of air to be given on fine days, to keep the plants from growing.

STOVE AND ORCHID-HOUSE.

A cautious application of fire-heat to be still observed here. The temperature to be kept rather low than otherwise, for fear of exciting premature growth. A small portion of air to be admitted on fine days, to purify the atmosphere of the house. Keep the surface of the soil in the pots free from weeds, as also from moss and lichen; but when doing so do not loosen the soil so as to injure the roots near the surface. Keep every plant free from dead leaves, and all climbing plants neatly tied up. The Achimenes, Clerodendrons, Erythrinus, Gloxinias, and the various bulbs will now be approaching a state of repose, and therefore will require but little or no water. To prevent confusion or mistakes it is advisable to place them on a shelf, or some other part of the house, by themselves. Although dormant, or nearly so, they require a stove temperature to keep them safe and sound.

FORCING-HOUSES.

ASPARAGUS and SEA-KALE.—Make up beds as wanted.

MUSHROOMS.—Keep a moist atmosphere in the house,

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and the temperature steadily at or near 60°. A fresh bed to be made and spawned every three or four weeks, to produce successional crops.

PINES.—The fruit now swelling will require the temperature and moisture of the house or pit to be kept up. Those intended for the main crop to be kept in a regular state, allowing them air at every favourable opportunity, with a day temperature from 70° to 75° and from 55° to 60° at night. Plants in bloom to receive careful attention. Keep the atmosphere dry with a brisk temperature, admitting a little fresh air at favourable opportunities, to prevent them from being injured by damp. When the heat is kept up by dung linings, constant watching will be necessary to prevent any fluctuation of temperature, having materials at hand to assist in case of frost.

VINES.—Where forcing has commenced attend to the breaking of the Vines by the application of fermenting manure inside the house, as advised last week, which will be found the best means of keeping the atmosphere regularly moist; but if such cannot be used, the wood should be syringed frequently, and evaporating-pans, or troughs, kept full of water. The roots, if outside, to be protected, and afforded a steady, gentle warmth until the buds are fairly swelled. As it is advisable to proceed very slowly with early Vines, the temperature to range from 55° to 60° by day and from 45° to 50° by night, and even rather under than over the above scale. Late Grapes will require great care to preserve them from damp. Look over them frequently, and dry the house by fire during the day.

WILLIAM KEANE.

SPERGULA PILIFERA.

THE adage "Fortune favours the brave" is not without exceptions: it only does so very often in the long run. It does not follow that a bold stroke for a fortune, or for a wife, is sure of success, even at the end of a long run; but this that I am going to tell is as sure as that I am telling it. Nothing that ever I undertook to do had my whole soul and body in it in a greater degree, or more earnestly; and when you hear of the precautions I took to ensure success, it will appear as a miracle that Fortune should not attend so much diligence, foresight, perseverance, and, above all, my patience and practice over the experiment.

It struck me all at once, one day last July, that I should be too late with my Coleworts—that others would be like me—and that there would be a dearth of them, or of plants to make them, in the market. So I resolved to gain time; and not only so, but prove a tale of wonder in the long run. Went to Kingston, asked for the very earliest and best kind of seeds for Coleworts; at the same time telling my tale to Miss Jackson, and making apology for not knowing the best kind myself—I never know the best of anything in the market till I first hear what the dealer has to say about it. Miss Jackson recommended *Matchless*, or else *Shilling's Queen*, as the best early kind of Cabbage-seeds to get the best Coleworts from; and as she has had more practice in supplying the best kinds of

all sorts of vegetables to all sorts of customers with all kinds of tastes and tempers, than any gardener I know, I took her advice and *Matchless*, dug enough for two beds, and worked the ground just as an old gardener would do for a lady who had been kind to him.

The weather was awfully hot and suffocating; the earth at a foot deep was almost as hot as one could bear to handle, but that was as much from the moisture in the cocoa-nut fibre as from the heat of the season. I gave it a good watering, nevertheless, to make a regular hotbed of it, as it were, and so to gain time. When the surface dried a little next day I stirred it up again to get a tilth for the seeds, as the farmers say. After sowing, another watering; and immediately after that watering I took Samuel Gilbert's plan, and sifted some dry soil over the wet surface, so as to keep the surface from caking and to keep in the moisture. I then put a double, or rather two mats over the place, the mats lying flat on the seed-bed. At the end of the third day I lifted the corner of one of the mats, and found the seeds bursting the seed-coat and no more; fourth day, a little more forward; and at the end of the fifth day the seed-leaves were heaving up the surface of the ground; and on the morning of the sixth day I could see the green of the seed-leaves just coming through. What made me so anxious to watch the seeds was to be in time to take off the mats the moment the seedlings broke ground; if I had left the mats on that day till two or three in the afternoon the seedlings would have been spoiled for my purpose.

Thousands, and tens of thousands, of far better seeds and seedlings are destroyed every year of our lives by a few more hours of unnatural shade, and too much heat and moisture. Just think of that! Five hours out of the ordinary course of nature are sufficient to destroy fifty thousand seedlings, or make them so spindly and so miffy that no mortal can do aught with them for weeks and months, if they live so long: or if they are of such a nature as the old witches used to be—so dry and wiry that nothing short of burning flames could get the life wholly extinct within them—why they will neither die, nor live, nor prosper, but remain to bother one out of all patience, and to tempt one to vow that all gardeners and gardening, seedsmen and bookwriters on gardening, and all who read and recommend them, ought to be sent to Jericho for their pains and prejudices, and so let the world have rest and peace for a season, while all the fault and failing were on the side of the tempted—he did not watch his seedlings as I did; he did not screen them from a burning sun as I did; neither did he prepare the seed-bed as I did—therefore he is in the wrong box if he wishes me among the rest either to Bath or Coventry.

But let us hear the end of it. As soon as the seedlings broke ground I took the mats off entirely, and put up long stakes on the south side of the seed-beds, and fastened the mats across between the sun and the beds, so as to cast a shade at mid-day across the farthest bed. I took down the mats the last thing every evening, and put them up soon after breakfast. I also sprinkled the seedlings every evening with a very fine rose-pot—just enough to put them in dew and no more. In three weeks from the sowing the plants were as much of my pride—indeed more so—as my new *Cyclamens* just then splitting their seed-coats nearly two inches below the surface. I used then to say that nothing is so old or so well known but that it may be improved on in some way or other; and that it is a bad sign of a good cook if the dinner party or the family circle can find out the roast, the fried, the boiled, or the baked of to-day and to-morrow in the “made up” of that or those that follow. I made up my mind to write essays on rearing all kinds of seeds in all seasons and weathers; and the essay for each kind and season to be as new and as different from the rest as veal pies are from pasties. But again let us hear the end.

It was now getting on to the time of pricking out

Coleworts from the seed-bed, to make them more stocky and shorter in the legs than one can see them round London. But that very day, or the night before, the fly took to them—and I took to the fly, and did all I could to kill it or keep it down; I even went to my oldest books for some *dotherrum* to exterminate the vermin, after all I knew and all I recollected had completely failed to even frighten one of them. I never was so completely done in my whole experience; and it is only declaring the bare truth to say, that if the getting up of Colewort plants had been tried this year for the first time, I should be as blameless as those who failed with the new grass, the *Spergula pilifera*, if I had written a whole book on purpose to prove the folly and madness of attempting to rear Cabbage plants in this climate, and with our present knowledge of the science of vegetation. I could show that no gardener from Adam to this day could do better or more scientifically than I did it. I could put the whole weight of my long experience into the scale against such mad projects; and were it not from knowing, by my own, that the outer skin of all public writers is electro-plated with brass, I would try and tickle them backwards, till I thought it was just as much as they could endure to bear and be alive, for presuming to recommend a “nation of shopkeepers” to spend their money on such foolery as rearing Cabbages from seeds, when they would come so much easier and cheaper from Cabbage plants.

Now, after one makes such an open confession of pride, vain glory, bad luck, and disappointment, and would do the scratching, if it were of any use, to the bargain, he cannot well turn round on the industrious hopefuls who put just as much spirit and strength in their *Spergula* attempts as I did in my Coleworts, and shared the same fate. Better it will be for all parties, and all kinds of plants, if we can but make the management of *Spergula* plants as easy of understanding as that of Coleworts or common Cabbage. Even after we get it to that point we must not forget my failure after all my practice; for scores will be just as liable to bad luck as I was, and hundreds will never learn sufficiently to enable them to keep their heads above water in gardening at all. I never could put much faith in what Samuel Gilbert and other old authors say about sowing seeds at the full or wane of the moon, or at the different points of the other planets; but I know of a charm as true as gospel against fear, prejudice, and bad luck in the sowing and management of any sort of seed one can think of, and that charm is this—Let the disappointed gardener or the unsuccessful amateur give us his full name and address, along with the story of his way of doing the plant, and that will enable us to judge of what might be expected from such a person: that charm is quite as safe as science itself, and we shall act upon it as such. But as if no charm or rule of action was without an occasional exception, there is my own failure with the commonest of all plants, the Cabbage Coleworts.

The truth is this. All the seeds of *Spergula pilifera* in England last spring would not suffice under the best management to plant one quarter of an acre of lawn; and suppose the whole of them to have been in the hands of one man, and that man to be the best gardener in the country, and that he gave his mind and his attention to make the best of them, he could not, under the best treatment, have his seedling plants ready for transplanting into a permanent place before last October certain. The seeds are small, and the seedlings are the very smallest of all the seedlings ever reared; and were they not of a nature as difficult to destroy as the nature of the Dandelion itself, not one of them that was planted out last June could have lived out that extraordinarily broiling-hot summer to tell the tale; but under careful treatment they did hold out, and progressed to astonishment, where ten thousand other kinds of stronger plants would hardly keep alive. I saw them at that pitch myself in the

Wellington Road Nursery, so there is no mistake at all about the hardy endurance of these seedlings; and Mr. Shirley Hibberd, with that enthusiasm for which he deserves the thanks of all true lovers of their garden, has succeeded in forming a large band, or belt, of *Spergula* round a bed in the way of a broad verge. Still, for the great bulk of growers, the true and sure way for seedlings is to plant them out the first season for nursing, to allow the nurslings to spread out into wide patches, and to divide those patches into half a dozen plants when they are large enough for it; and so increase the number till there is a sufficient quantity of them to make a respectable beginning on a corner of the lawn. Any other way, or a shorter road, is so much enthusiasm; and we all know that enthusiasts fail just as often as they excel: therefore, they are neither good nor sure guides.

Three years from this time will be soon enough in the eyes of sound, sober practitioners to make such "fishing" inquiries about this *Spergula*. By that time it will have made root and progress in the land; and people—that is, the great body of amateurs, will begin to learn its use and its value, and its superiority over all kinds of grass. Yes, only be *beginning* to learn all about it. Some here and some there will be more advanced; but it requires a long time for any such great change and improvement to possess the public mind.

Why was *Tritoma uvaria* advertised in our columns the other day at 9s. per dozen, after standing over twenty years at 30s. for the same number? Why did the whole country and kingdom discard, in three short years, the thirty years' practice of placing the glowing colours in the centre of all flower gardens? Or why did the Horticultural Society fail most completely to raise the wind for Chiswick, and got up the elements to Kensington Gore? Why, indeed, but because the sound, practical knowledge of THE COTTAGE GARDENER sets its face decidedly against the things as they were? There was no COTTAGE GARDENER in 1838, when the first move was made by your humble servant for the exhibition of fine-leaved and variegated plants, and when he exhibited over four hundred of them at one show, contrary to the feelings of every man at Chiswick; but the disadvantage of no backers, and the harmlessness of croaking and of sarcasm, could hold back the movement only for seven years. I had a hand in managing the first hot-water apparatus that ever was erected in Scotland; and I well recollect that as much was said against it as against any new project I ever heard of; and I cannot call to mind any project of improvement in our line since, which did not first obtain its largest share of public notice from the grumblers who dreaded every such movement as they did the enemy of mankind.

Well, then, after being so well seasoned to that sort of thing, and with such a practical guide as THE COTTAGE GARDENER at my back—if you believe me, all that can be said against covering our lawns with this *Spergula* can make no more impression on me than the loss of a few seedling Geraniums by the frost. THE COTTAGE GARDENER took up the subject as most promising and most practical when the old Horticultural and the Doctor confessed they knew no more about it than was given in the last spring seed-catalogue of the Messrs. Henderson, of St. John's Wood Nursery. But the plant was not a stranger to many of us of THE COTTAGE GARDENER. When I was at Kew last summer I asked Mr. Craig, of the flower-garden department, to take me to *Spergula pilifera* in the botanic grounds. There it was sure enough—the same plant I had grown for years and years—under the wrong name of *Sagina procumbens*, but which we usually called the "carpet plant;" and in connection with it I never hear now or read of Delhi or Lucknow without a shudder, for fear that some of the happy school-girls from India, whom we used to allow to dance on our carpet plant, may have been massacred there. I have known one patch of it, not much over a yard square, to

have been danced on three or four times a-day for months; and all the garden men said, the more dancing the better the plant did. That was on the poorest and most sandy soil in the three kingdoms; and at Forest Hill, where I next saw it, the soil was the stiffest red clay I ever saw. To me, therefore, it is a very old plant indeed; and I pledge all my feathers that in a few years people will be delighted with the wonderful change it will make about the house, and over one's grounds, to say nothing of the entire expense of mowing being done away most completely. Nobody can conceive the full beauty of it without seeing it in full trim, and as to any crotchet or difficulty about doing it, there is none—it is just as plain as growing Pompones. But we cannot expect impossibilities from it, or that it is to spring up like Jonah's Gourd. Nothing but pains and patience will succeed with it. The rate at which it will increase after once getting established is most astonishing; and except it be the strong-rooted Docks, Dandelions, and Cocksfoot Grass, I do not think that any of the Grass breeds or Daisies will have any chance to live with it.

D. BEATON.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(Continued from page 110.)

THIRD SEASON—MATTERS RETROSPECTIVE AND PERSPECTIVE.

It will now be time to look backward and see what has been done the past season, how the pre-arranged plans of a former year had answered, what crops there had been, and, in fact, how the whole plan had worked; and if anything had failed to come up to the point expected of it, then another course might be adopted another season, this being the most favourable time for making such a review of things done and projected. Taking it for granted that the Clover that has been doing duty for two seasons may be now broken up, the crops to succeed this Clover lea must be taken into consideration; and assuming the cultivation to be directed to the production of crops available for the cow and pigs—or, if not that, then a Wheat crop, or some one that will find a sure and ready market—it will perhaps be better to continue the description of cropping through another year in the same way as it has hitherto been done. In this place it is proper to remark that the system we have begun with cannot well be carried on more than four years—that is, two years each to the plots of Clover occupying so considerable a portion of the ground; this crop, as we have said before, not succeeding on the same ground again in less time than a lapse of six or eight years. This being the case, some other crop must be thought of which will come into use to continue the succession; and the cropping, or rather the cultivation, must be conducted with a view to ensure this, which may be done in the following manner:—

CROPS OF THE FOURTH SEASON.

The most important of these crops must be put in the autumn before; the portion to be operated upon being 100 rods of Clover lea, and 20 rods that had been Potatoes. The Clover lea being broken up either by spade or deep plough the first week or so in October, or before if convenient, and the Potato ground turned up roughly, with a good dressing of dung added to it as soon after the crop has been taken away as convenient, the future crops may be put in; which we advise to be thus, enumerating the fixed crop of Grass and Clover for clearness each time:—

- 60 rods Grass, the same as before.
- 80 " Clover (young), which will afford a good crop if all go on well.
- 40 " Wheat on part of old Clover lea.

- 40 rods Beans on part of old Clover lea.
 20 „ Potatoes on part of old Clover lea.
 20 „ Lucern on ground that had been Potatoes.

The ground having been all broken up as directed, the Wheat crop may be sown about the middle of November, or about the time common in the district for sowing this well-known crop. I have advised it here as being one of the most likely to be useful, and one that invariably does well after Clover. If the autumn prove mild, slugs will abound and prove destructive: if so, a dressing with soot will check their ravages, and a little more seed may be dibbled into the blank places caused by these depredators. I have advised Wheat as being the most useful change between green crops; and as soon as it is cut I would recommend the ground to be ploughed or dug and well manured, and a portion of it sown with Turnips as early as possible—the *White Round* or *Stone* being as good as any for this work. The other portion I would advise to be sown with Tares in October; the ground having, as said above, had a good dressing with dung. It is presumed there are not many weeds; but to ensure these being few it is advisable to hoe the Wheat crop all over towards the end of April, destroying any small weeds that might otherwise be troublesome. The Turnips will also want thinning at the proper time. We ought to have remarked that, prior to the Clover lea being broken up, it ought to be looked over, and any Docks, Nettles, Dandelion, or other deep-rooted perennial weeds that might be there, ought to be removed by hand at once and destroyed; but with good management these intruders ought to be few, and their expulsion immediate on their being seen.

BEAN CROP.

This must be treated somewhat differently. The same breaking up and dressing with dung may take place; but instead of the Beans being made to represent the whole crop they are only to form a part of it, or rather to become a nurse to another one. The ground being therefore ready, let the Beans be dibbled in in rows from eighteen inches to two feet apart, and the usual distance of about four inches apart in the row: this may be done at the latter end of November. The small field winter Bean is the best for this purpose; and in May a row of Swede Turnips may be sown between the Beans, which, though not prospering so well as those sown in the open ground, yet very often turn out a useful good crop, and do well. Of course, care must be taken not to injure the Beans when sowing the Turnips; and also not to injure the Turnips when harvesting the Beans. A little care exercised this way, and hoeing and clearing the ground where the Bean-stalks were, and transplanting Swede Turnips to fill up any gaps in the rising crop in damp weather, complete the work here for the summer.

J. ROBSON.

(To be continued.)

VINES UNPRODUCTIVE IN A GREENHOUSE.

My black *Hamburgh* Vines have been planted and trained in my greenhouse on the spur system about seven years. The border is about four feet across and well drained, and the Vines healthy, but they do not produce half a crop of Grapes annually. The spurs were left last year with two or three eyes, but this did not work any improvement. A practical gardener recommended me to allow one of the shoots from the lowest eyes to grow without stopping it, and to cut away the old wood, and use the new shoot in its place. He advises this to be done each year; but before I adopt such a strong measure I should be glad of your advice on the subject. The few Grapes that the Vines do produce are fine and well flavoured, but there are not more than six or eight bunches on each plant at the top of the house. The new shoots are not very strong, but the wood appears pretty well ripened.—ARTHUR LOFTUS.

[We fear that the mere mode of pruning will not do all for

your Vines that you require. If your Vines are very luxuriant we should judge that the roots have got down too deep, independently of rain drainage. If only moderately luxuriant and healthy, as you say, and yet bearing chiefly near the top of the house, then we judge that your Vines need more nutriment in your narrow border of four feet, such as a top dressing of rich manure of bruised bones, or a sprinkling of superphosphate of lime over the border several times in summer before you expect rain. With a sufficiency of nourishment at the roots, and the foliage fully exposed to the sun, and the wood well ripened, we do not see how the spurs on the lower part of the Vine should not be as fruitful as those on the upper part, though, as a general rule, the finest fruit would be at the top of the house. If in your narrow border you have given none of these surface-dressings, then it would be well to do so before greatly altering your system of management.

The Vine, however, just like a young, stunted Oak, will be greatly invigorated by cutting it back to young wood, either as you propose doing, or by sacrificing the crop for a season, so that the whole strength of the roots may be thrown into one shoot. Under your circumstances resolve to recruit the Vine, and yet secure the crop. We should have preferred taking the young rod before stopping only half the length the first season, and taking it to the top of the house the second season. We would thus make a compromise between fruit and strength of wood. If, as you say, the new shoots are not very strong, it would be as well to do so even now. If the young shoots range from the girth of your finger to that of your thumb, and are well hardened and ripened, you may cut away the old stem with its spurs, and depend on the new shoot bearing from top to bottom, though it would be better to place it horizontally along the house until the buds had broken regularly; as, if you train the shoot upright at breaking time, the buds farthest from the roots will start first and rob those buds nearest to it.

We can hardly make the matter so clear as we should like without entering so far into general routine as would prevent any misconception, and, therefore, we will say a few words on the management under different circumstances.

1st. *Vines bearing on spurs*.—Even in this case the upper spurs will be apt to obtain a more free supply of the sap than the lower ones; and to counteract this we leave more laterals at first on the lower spurs and curtail them at the top, in order so far to restore the equilibrium. We leave a joint or so of these laterals as well as all the main leaves on the spurs, as far as the fruit, or a joint beyond, in summer, in order to keep up a brisk root action; but as the autumn approaches we gradually remove these laterals, and leave only the main leaves at the joints, in order that ripening and hardening of the wood may be promoted at the expense of mere growth. Understand this thoroughly, and you see the key note or principle of culture when you wish to change your mode of growing or pruning, as—

2nd. *On the long-rod mode of growing and yet not losing a crop*.—In this case select a shoot near the base of the stem not to be stopped, whilst every other shoot on the Vine is stopped, either before the fruit or where there is no fruit, at the distance of five joints or so from its base. The shoot not stopped, having its growing point unutilized, will grow more freely than the others. The reason why the shoots not having fruit are not removed at first is to prevent the Vine thereby receiving a check. No laterals should be allowed to grow on these barren spurs. Laterals should only be permitted on the higher fruitful spurs, and just to maintain a good flow of sap to the extremities and keep a brisk root action. But as the young unstopped shoot grows rapidly, which it is almost sure to do, the unfruitful spurs in its vicinity should be cut close off to the stem, and all the laterals even from fruitful spurs. By the time the shoot has got halfway up the house all the barren spurs should be cut clean out, and shortly after no laterals should be permitted to remain even on fruitful spurs, the main leaves being quite sufficient to draw nourishment to the fruit, whilst the one unstopped young shoot will take all the running, so to speak, and keep up a vigorous root action. So thoroughly must the encouragement be given to this one unstopped shoot, that even fruitful spurs should be cut clean out as soon as the bunch of Grapes is cut.

It will now be seen that, except for a short time at first, no barren shoots and no laterals are to be left to compete with the one shoot—the hope of the future. That shoot is to be treated differently. As soon as the laterals from its base extend a couple of joints, each is to be stopped; and when the shoot is four feet or so in length, stop the lateral at the first joint. The object is

to give most foliage near the base of the shoot, in order that the shoot may be thickest there. These laterals will add to the strength of the stem and keep up a vigorous root action, and are only to be gradually removed, leaving only the main leaves at the joints, when in autumn it is more important to harden and ripen the wood than to keep up languid growth. Supposing the rod to be stopped at the top of the house, we would begin removing the laterals at the top in September, and finish at the base by the beginning of October. As soon as the fruit is cut, remove the old stem and depend entirely on the young shoot. Next spring you will have to determine whether you will continue such a mode of growing on young wood every year, or make the shoot the basis of reverting to the spur pruning. In the former case you will treat the new shoot and its crop as advised above, giving the room for growth to a successional new one. In the latter case you will have not only to break your shoot regularly, but also to select the buds that are placed at regular distances, in order to form future spurs; and these, whether they have fruit or not, will have to be treated as respects laterals, &c., as stated under the spur system. We have frequently tried both methods, and, on the whole, there is most trouble with the rod system; and as respects fruit it has its disadvantages and advantages. In general, as a whole, the bunches are finer, and look best at the earliest part of the year; but we are inclined to think that the bunches do not finish off so well as under the spur system. First-rate Grapes are, however, obtained equally under both systems. For greenhouses the spur mode is by far the most convenient. There is, however, no difficulty in breaking regularly a young shoot twenty feet or more long, and taking a crop regularly all its length, if the roots are in good order and the wood is firm, showing little or no pith in the centre.

3rd. *Succession-rod system.*—Our correspondent will now judge whether his practice has been such, and the strength of his wood is such, that he can take his new shoot all the width of the house and entirely destroy his old stem. If at all doubtful, it would be best to err on the safe side, and leave his new shoot only half the width of the house, or even less than that. In that case the old stem should be cleared of spurs, only a little farther than the point of the young shoot left. The top of the old stem should be left merely as advised above for its fruit, and the upper bud of the young shoot encouraged to grow to supply the place of the old stem to be removed, whilst the lower part of that young shoot with its spurs must be managed according as you wish to revert again to the spurring system, which will be again in full operation the following year, or whether you would choose the succession-rod system. We should prefer spurring.]

REMOVING NEWLY-BUDDED ROSES.

Is it better to move Rose-stocks the first autumn after they have been budded on, or should they be allowed to stay in the nursery until after the bud has made a shoot?—A LADY.

[It is the very worst practice to remove worked Roses in the British gardens before the buds inserted the previous summer have made shoots. It is a common practice in some foreign nurseries to satisfy the craving propensities of the natives for new things; and we might do it now and then from necessity—either on account of some alterations in the garden or nursery or a change of residence, but to make it a practice would not be to our advantage.]

THE MANAGEMENT OF PLANTATIONS AND WOODS.

THERE are few subjects which are more highly deserving of consideration, or of greater interest to the community at large, than those which relate to the planting and rearing of trees and their conversion into the various uses in our arts and manufactures.

The observant traveller in passing through a breadth of this country must have observed the great neglect of trees by their proprietors, while in France he may travel for hundreds of miles without seeing a single fine tree. The forest of Fontainebleau contains many gigantic Oaks, and presents a rich scene of woodland beauty; but it is a chaos of mismanagement as to the younger trees. At St. Cloud there are a few fine old Chestnut trees, which seem to have been promiscuously thrown from Nature's lap. I never was more forcibly struck with this deficiency of trees than in going from Boulogne-sur-Mer to Paris.

The whole distance is so perfectly unlike our English scenery, where the whole landscape is varied with our beautiful Elms, Oaks, and Beeches; and the horizontal line of tops is occasionally broken by a group, or a single specimen of the Lombardy Poplar.

But while dilating upon the beautiful *tout ensemble* which our country presents to the eyes of admiring travellers, we must step aside from the whole to examine its details; and in them I fear to find much of ignorant practice and extraordinary empiricism.

Whilst writing on the subject, may I be permitted to hint that the science of arboriculture would by the establishment of an arboricultural society be much advanced? See how much the agricultural and horticultural societies have done for their respective sciences, and mark the good which results from bringing various experiences together.

Perhaps there are few actions more agreeable to men of mind than that of planting trees. The wisest and best of men have always delighted in doing so. It is not to be wondered at, then, that the wealthy traders of our cities and manufacturing towns—our millionaires—purchase vast estates, and plant them with all kinds of trees, without regard to any final arrangement or what kinds of trees are best suited for the soil. Having done this, the plantation goes on for some twenty-five or thirty years without a thought or a touch. The trees become crowded and attenuated, and it is then determined to thin them. In all probability a great number of Larches are planted as nurses; but from their rapid growth they have mastered and destroyed all the other trees. The plantation is thinned, and a strong gale follows in a short time; the long, heavy-topped trees are wind-waved and bent in all directions, and their future progress is checked for ever. This is, I regret to say, but too faithful a picture of plantation management as exemplified by the major part of English proprietors, who seem to think it honourable to be well acquainted with the "Herd Book," who thin out their Turnips thoroughly, but who leave their trees to pine and waste neglected. "'Tis strange! 'tis true!"

It is most difficult to account for the phenomenon of a man who recognises in one department the principles of vegetable physiology, but throws all his knowledge to the winds in the culture of other plants which can only succeed by adopting the same principles.

Turnips will not grow fine if clustered; neither will trees unless they have a free circulation of air—a condition only secured by watchfulness and timely thinning.

There is another great and most prevalent error. Persons "who cut wood that they may have wood," frequently procrastinate the operation till too late in the season, when the roots have been slowly storing up sap for the buds since the fall of the leaf, and they expect their wood to come up thick and strong. But how can such be hoped for? The stools have already laboured hard for the supply, and the small residue which they can afford is a poor and weak measure of supply, and will produce but a puny race of shoots, of which the strongest will annihilate the weakest. Great advantage would result in coppice woods from thinning out the shoots, cutting away the weaker, and leaving the strong unencumbered by their weaker and doomed brethren.

There are many candidates for the situation of foresters who do not understand anything of the effect of fine trees in groups or masses, and do not appreciate the intricate and ever-varying forms which woods adopt in their outlines, but thin all their plantations by line and rule—a very good plan in the interior, but a most unpicturesque one on the outside. To unite beauty with utility in this kind of work is seldom thought of; and the timber-merchant would look with scorn upon the man who sees beauty in trees depicted otherwise than in square feet.

The trees on the exterior of a wood should have much less pruning than those inside it. They should not have their branches pruned above the browsing line; whilst those inside may be pruned as highly as the purpose for which they are grown requires.

There are two applications of the art of pruning to forest trees. The one is mere lopping off or sawing decayed limbs from a healthy tree, and may be called amputation; and the other is the exercise of a watchful care over the young shoots, pinching out vigorous growths where they tend to make the tree unfit for its object, and thus assisting to strengthen those growths which tend to accomplish what is required. If this preventive-pruning were more practised there would be much less of cutting and maiming in after years. Surely it is better to use preventives than to apply remedies.

In Oak woods with undergrowth there is too, unfortunately, great neglect practised in thinning the trees. I have frequently seen large spaces in old woods where there ought to be good underwood quite denuded of it by the influence of the numerous trees and the agency of those intolerable vermin—rabbits. To remedy this, I would grow my timber trees and underwood separately. The underwood thus grown would be worth as much again per acre; and the trees properly thinned from their first planting would be sturdy and well balanced in every respect. How common is it to find large Beeches growing in woods without a vestige of the original undergrowth existing beneath their ample shade! Beech woods should be Beech, and nothing else should be planted near them.

With regard to growing underwood by itself, we have familiar instances of the superior quality of Ash when grown in separate spinuies, or beds. When this plant occurs in mixed woods it is not half so straight and good as when grown in beds, and so it would be with all that is usually undergrowth.

The practical acquirements of foresters are by no means to be deprecated or thought lightly of. It is most necessary that they should have sound practical knowledge; but I would claim from them also, as essentials, a tolerable amount of physiological knowledge, and of taste for landscape scenery enough to be able to treat the objects they manage with artistic skill, and not to perpetrate the barbarities which I have seen unskilled woodmen commit.

I will now briefly sum up the recommendations which I would most strongly urge—viz., in forming plantations to have the soil well loosened as far as it can be conveniently done; to plant early in autumn; to begin thinning very early; to look scrupulously for excessive growths; stopping them, and throwing the strength of the plant into its proper forms. This persevered in will prevent large and serious wounds in after years, and it will only be in cases of accident that amputations need be resorted to.

The management of woods is called in THE COTTAGE GARDENER "Wood-craft." It is certainly happily named, as there are few things which require a greater amount of "craft," or knowledge, to manage successfully.—HENRY BAILEY, *Nuneham*.

SPERGULA PILIFERA.

I MAY be expected, perhaps, by some to write a line in reply to Mr. Robson's queries about the *Spergula pilifera*. During the past summer the lawn at Forest Hill has quite maintained the high character given it in the spring: so much so, that two-thirds of our old grass lawn now lie in a stack in the compost-yard, preparing for other duties, while the ground it occupied has been covered with its rival. The original *Spergula* lawn has not shown the least symptoms of burning, but quite maintained its beautiful verdure during the summer, and that without watering, &c.; while the grass lawn, divided from it by a gravel-walk three feet wide, could scarcely boast of a green blade in some parts. It bears the wear and tear of walking, &c. (not omitting the wheelbarrow), equally as well as grass; while it possesses this advantage over the latter—that, should small tufts be accidentally knocked off in wheeling, &c., the plant soon pushes forth its tiny creeping shoots, which immediately take root and cover the ground again.

A Thorn hedge divides our garden from a field in which thousands of bricks have been made during the last few years; but our surface soil is a light clay, through the little crevices of which the roots of the *Spergula* penetrate to a great depth: we have traced them more than three feet. In the gravel walks, which are a foot deep in some places, with gravel, broken bricks, &c., it soon establishes itself, forming quite a green tuft in a short time if allowed to have its own way. On peat it seems to thrive equally well; so that we expect some day it will be quite a boon to Scotch and Irish gardeners in some situations.

I have not yet heard of a single case of non-success where seeds or plants have been attended to as Messrs. E. G. Henderson and Son directed; and I feel confident, from experiments during the past summer, that the statement I laid before the above firm some time since must soon be published to the gardening world (being quite correct), viz., "the best way to get a good lawn of the *Spergula* from seeds is to sow in the open ground, either broadcast or in drills, in autumn or early spring; an ounce of seed being ample for half an acre."

In conclusion I may add, that if Mr. Robson is still at all sceptical, should he be in our neighbourhood at any time I shall

be most happy to show him the contents of our small garden. We have a wheelbarrow at hand that will be quite at our disposal for a run over the lawn.—J. A. SUMMERS, *Gardener to A. Mon-gredien, Esq.*

In the spring of the year I purchased of Messrs. Henderson a 2s. 6d. packet of the seed of *Spergula*, hoping to find it serviceable as a verge along a flower-bed which runs the full extent of my garden, and which for the most part facing south, and being very hot and dry, caused my grass verge (twelve inches deep) to look anything but what I liked in a flower garden. I sowed the *Spergula* seed in the boxes recommended in THE COTTAGE GARDENER for cuttings (capital things they are too), and placed them in a cool greenhouse. The seedlings came up very thickly; and I planted out into the same kind of boxes small tufts, which grew well and strong. About the early part of June I planted out along the verge, having moved the grass and prepared the soil. The *Spergula*, though I watered it every day (sometimes twice a-day) grew very slowly, and for about three months seemed at a standstill; and then till October only made very little growth. About the middle of October I was so dissatisfied with the progress and appearance of the *Spergula*, that I pulled it up and threw it away, and have now edged my border with Box. I must say that I took great pains to grow this *Spergula* well, thinking it would be a capital substitute for grass in my garden. Several of my friends kept occasionally coming to see how it went on, and they all pronounced each time, "It will not do." Certainly at the time I took it up it looked more wiry; but there were many parts (joints) that appeared dead and brown; and I cannot think it would stand any treading or barrow work. Added to this, the seed sows itself very much; and I should fancy would come up on the gravel walks. Thus I send you my experience from first to last, and hope Mr. Robson's letter will bring out other people's successes and failures; and if I find the former preponderate I do not say I shall not try it once more.—L. R. LUCAS, *Louth*.

[This proves nothing for or against the *Spergula*. Would our best lawn Poa stand such a trial? or would any of the common grasses on the lawn, from seeds last April, transplanted in June on a verge, be alive in August? No, not one plant of them, even if a man stood by them and did nothing else but water them. Let not our correspondent's letter check any one intending to use the *Spergula*. October is the soonest time to transplant for good spring seedlings.]

BENEFITS ARISING FROM HORTICULTURAL EXHIBITIONS.

I HAVE been connected with horticultural exhibitions for forty years. I have seen many societies formed for that especial purpose, and have seen them fail and break up—even such as had the highest in rank in this country as patrons, from the Yorkshire Society, established in 1820, to the Chiswick Society established about the same time, or, perhaps, earlier. Many others like those two have flourished for a few years, and gone out of existence like them. The causes of the failure of those great and little exhibitions have generally arisen from want of proper management and quarrels amongst the Committees; certainly not from want of encouragement by the public. My present object, however, is not to show forth the faults and failures of horticultural societies, but to dilate upon the benefits that accrue from such exhibitions, whether now in going order and prosperity, or, after having achieved some good, they no longer exist.

There are no less than six classes of persons who benefit largely by those shows. They are:—1st, The employers of gardeners. 2nd, Gardeners themselves. 3rd, Amateurs. 4th, Cottagers. 5th, Nurserymen; and 6th, Artists in design, besides the public in general.

1st. *Employers of Gardeners*.—Many of this class of the public may ask, "How am I benefited by exhibitions of garden produce? I neither exhibit nor subscribe." Well, I answer, such may be the case, and also, perhaps, you do not allow your gardener to visit the shows. Still, even you benefit, inasmuch as by these displays of the best of the products of the gardens the character of the said products is elevated, and it becomes absolutely necessary that every garden should produce superior products; and in order to be able to come up to the mark, the gardener must exert his hand and his head to keep pace with the

times and his fellows; and by doing so his employer reaps the benefit accruing from the knowledge his gardener has incidentally gained by the exhibition, and by the spirit of emulation surely evoked by seeing, or hearing of, better garden products than he has been in the habit of growing for his master's use or pleasure. But, if the employer is a liberal-minded gentleman, subscribes to exhibitions, and allows his gardener to compete, then the benefit he reaps from such exhibitions is very great indeed. See how superior his plants are grown; what strivings there are in his garden to produce excelling fruits; what diligent care is bestowed upon the rare and beautiful flowers; and, to keep up a uniformity in the entire place, what extra labour is bestowed upon every part of the garden, the scene of his labours and delight. I know this is true, for I have visited such gardens in various parts of the kingdom; and wherever the gardener is an exhibiting one, I have invariably found the garden managed in the highest style, and thus his employer is greatly benefited by exhibitions.

2nd. Gardeners themselves.—Every gardener who visits an exhibition necessarily receives some benefit thereby. He sees superior productions displayed, and naturally inquires how they have been managed. He meets with his fellow gardeners, and many a pleasant feeling is raised in his mind. No class of men are more friendly than gardeners, and their periodical meetings give them an opportunity of exercising good will towards men, especially their fellows in business. Then they have an opportunity of discussing different modes of cultivation, and seeing different ways of training plants and forming specimens. They also see the new plants and learn their proper names. If any are out of place, then is a good time to hear of any situations that may be vacant. Above all, however, the gardener who is allowed the privilege of exhibiting has an opportunity of displaying his skill, and winning renown by his success. Even the unsuccessful exhibitor obtains benefit by the exhibition. He sees he is beaten; but, like a true John Bull, he goes home more determined to exercise the utmost of his means and abilities, in order to fairly defeat his former competitors. All these benefits and many others that may be easily imagined prove that exhibitions are, indeed, a boon to gardeners themselves.

3rd and 4th. Amateurs and Cottagers.—I class these two together, because the kinds of benefits they receive from exhibitions are very much alike. Both see exhibited the superior plants, fruits, and vegetables from their more opulent neighbours' gardens, and both are led to inquire from gardeners how they must proceed in order to succeed equally well in producing such superior articles. Indeed, of late years I have frequently been surprised and much gratified to find the amateur and cottager bringing to the exhibition in the country equal, and, in many cases, better vegetables than the gardeners from ducal or lordly gardens, proving that exhibitions have greatly benefited these important classes of the community.

5th. Nurserymen.—I need scarcely say that this class have gained very much by exhibitions. The demand for plants suitable for this purpose has generally increased. If in any district in the country a society for the encouragement of horticulture and floriculture is established, immediately orders are sent off for suitable plants to compete with. When travelling for the authorities at Pine Apple Place, I was pretty certain of increased orders in any county or city where a society of this character was just established. These exhibitions also benefit nurserymen, by giving them an opportunity of exhibiting any new varieties of plants or flowers they may have raised, and thus stamping a character and value upon their seedlings that otherwise they would not have so good an opportunity of acquiring. At such places, also, the nurserymen meet with their best and most ardent supporters, and there often receive large orders. Hence nurserymen ought (as indeed they do), subscribe liberally to, and support such societies throughout the whole kingdom.

6th. Artists in Design.—This class of persons might benefit largely by attending exhibitions, and observing how Nature has designed and arranged the foliage and flowers of plants. How seldom do we see our rooms papered with a truly tasteful, natural design on them. Let the artist observe how Nature garnishes her productions, and closely imitate her, and he will succeed in elevating and purifying the public taste. No place is so likely to afford models of study as that of an exhibition-tent. The arrangement of the plants and cut flowers at such exhibitions is a most important point; and I think the managers would act wisely to have an artist of acknowledged ability to assist them in placing the glowing materials at their disposal in the most

effective manner, so as to give a character and design to the whole exhibition. Such was the case, in a great measure, at the autumn exhibition in the Town Hall at Leeds in September last. The advice and assistance of Mr. Waller, an eminent artist, were freely offered and as freely accepted; and the consequence was, the effect of the arrangement of the decorations was eminently successful.

I have thus briefly endeavoured to show what particular classes of persons are benefited by these displays of the beauties of the vegetable kingdom, and I think I have made good my position. In return for these advantages ought they not to exert all their best endeavours to encourage the exhibitions, and thus return good for good? Let employers of gardeners support exhibitions by liberal subscriptions. Let gardeners exert themselves to render the shows worthy of the name. Let amateurs and cottagers unite to help the gardener to make a good display. Let nurserymen assist all they can. And let artists help also; and all having done their best, will, I am certain, meet encouragement from a discerning public.

T. APPLEBY.

GROWING VINES AND STOVE PLANTS TOGETHER.

HAVING a house about fifteen feet in length by nine feet in depth, sunk three feet below the surface of the ground, and to which there is a good Vine-border outside, I am desirous of using it not only as a small vinery, but also for keeping through the winter stove Ferns, for growing Gloxinias, &c., and for forwarding Azaleas, &c., for the conservatory. Now, if I put on heat it will start the Vines. Is it too early to do this? I should have said that the house is heated from the same boiler as the greenhouse, nearly adjoining, although by separate pipes.

Can you recommend a simple work on the cultivation of the Vine under glass?—A CONSTANT SUBSCRIBER.

[See what is said on the Vine to-day. Saunders on the Vine is good, and so is Roberts, with the exception of his garbage manure. You can do all you propose in your house if you mean to force your Vines; and the plants will do very well until the Vine-leaves become too thick to permit enough light to the plants below. If you do not want to force your Vines so soon as you would like to force Azaleas, &c., you should have your Vines planted so that they could be taken out of the house; or, what would be better, you might, by means of a double front to your house, place your Vines all horizontally in a bundle in winter, and separate them entirely from the heat of the house by a partition of wood, &c. By small openings in that wood, when you liked you could let in heated air to excite them gradually. When a house has a glass front of two or three feet or more in height, a double front furnishes in the space between the fronts a fine winter quarter for Vines, and then you may make your vinery a hothouse or a stove all the winter, without any risk of starting the Vines.]

OLD FUCHSIAS AND GERANIUMS AT ST. LEONARD'S HILL.

ON one of those beautiful eminences commanding the royal borough of Windsor and the richly cultivated district to the north and south of it, stands St. Leonard's Hill, the residence of Mr. Roberts, the eminent London banker. The well-wooded park seems scarcely less than the one attached to the Royal Palace of Windsor, the towers of which form a fine feature in the landscape, as well as the town at their base. In fact, the site of St. Leonards may well vie with that noble abode of Royalty; although, in an architectural point of view, the mansion may have no great pretensions to distinction. My purpose here is not to make comparisons of that kind, but to point out some objects in the garden and grounds well worth imitating elsewhere.

As before stated, the mansion of St. Leonard's Hill stands high; but it is, nevertheless, well sheltered by high trees, plentifully, if not almost too profusely, planted all over the park and around the mansion also. Some important views have been cut through: one in particular, pointing to the majestic towers of Windsor about four miles off, is very well chosen. The soil is dry and well adapted for ripening anything that may be growing in the garden or elsewhere, and most of our hardy forest trees arrive at great perfection. I noticed some very fine Beeches on the lawn, and Rhododendrons seemed to thrive well; and near

to the mansion was the finest deciduous Cypress I ever saw. I forget the precise girth it was; but it was little short of that of some of the Oaks and Beeches by which it was surrounded. The lawn was in beautiful order; and the flower-beds were of large size, and scattered irregularly over the grounds, to blend in with the natural scenery everywhere prevalent. This irregularity afforded Mr. Hall, the worthy gardener there, the opportunity of carrying out the noblest specimen of flower-bed management I have seen this season, and I am told he has done the same for very many years. Although I have seen the same system pursued to a certain extent with advantage, I never saw it done with so good effect as at St. Leonard's Hill.

The plan is this:—the mansion being one of those coloured white, or nearly so, a sort of lattice-work was run up between the windows to the height of fourteen or sixteen feet. This space was covered entirely with scarlet Geraniums, which at the time I saw them were covered with a profusion of bloom of the most brilliant scarlet; which, contrasting with the light-coloured walls and glossy green leaves of the plant, presented as gay an appearance as could well be imagined. But there was no glass covering to secure those fine plants in winter; and as anything unsightly could never be countenanced there, Mr. Hall had the plants all taken up every autumn and housed somewhere. The large flower-beds on the lawn were also filled with very large plants: *Tom Thumb* being six feet high; *Flower of the Day* quite as large; *Fuchsia fulgens* the same height; and *Fuchsia corymbiflora*, which we rarely see now in flower gardens, was flowering beautifully eight feet high and upwards. At that height the fine carmine tubular blossoms showed to good effect, as likewise did the *Fuchsia fulgens*. In fact, unless these plants are on a level with the eye, or above it, their flowers do not show at all. I never saw them so well managed as Mr. Hall does them—the grand secret, no doubt, being their size and age; besides which, a good deal of taste was displayed in the arrangement as well. Most of the beds had an edging proportionately lower than the centre, and some of the beds were composed of concentric rings well arranged; but I cannot now call to memory their particular arrangement. One or two strong-growing scarlet Geraniums upwards of seven feet high, *Ageratum* much the same, *Flower of the Day*, blue *Salvia*, the two *Fuchsias* above mentioned, and some *Calceolarias*, which, however, had not done well, were the principal plants used; and the profusion of flowers they presented in such large masses contrasted well with the fine detached shrubs, specimens of *Pinus*, and other things with which the ground was irregularly planted. The great secret was in keeping such large plants over the winter; Mr. Hall having only indifferent accommodation that way, every credit is due to him for so doing. I understand that some of the scarlet Geraniums against the house were nearly twenty years old, and had been treated all that time in the manner described—i.e., taken up in autumn, and put in large pots with a stout stake or pole to each, and kept all the winter in an old glass structure; the small border they were grown in receiving a little assistance of fresh soil each year, but not much, as scarlet Geraniums do not require a rich soil to flower well. The beds also, no doubt, were well done by; for although I have seen some gardens the past season that rank high for their flower-bed management, I have not seen any that looked so well in their position as did those at St. Leonard's Hill. Mr. Hall, the gardener, who has been there many years, and is far from being a young man, told me he had practised taking up scarlet Geraniums in autumn ever since he knew them, which must be a half century or more ago.

J. ROBSON.

GERANIUMS FROZEN IN OCTOBER.

IN your pages of November 8th, Mr. Beaton, in his article, states, "Not an eye or an inch of Scarlet Geranium has been killed below the surface." I am not fond of contradiction, neither do I for a moment imagine our worthy friend would on any point wilfully mislead; but all men are prone to error, and I think you will allow such holds good in this case when I assure you that out of a stock of at least 2000 Scarlets, carefully lifted and shaken to get rid of all frosted parts possible, afterwards spreading them as thinly as quantity permitted in sheds beyond the reach of frost, to gradually thaw, there are not at this time 100 from which the bark will not part as readily as from a boiled Potato, even quite below the stump he so sensibly recommends the storing of; therefore, I do not see any bright prospect of cuttings from that source. Many may doubtless be secured by root propagation,

and by this and the ordinary methods I see no fear of supplying all plants desired next spring; thinking little of the up-hill work, ever finding *that* part and parcel of the gardener's lot in life.

Trusting Mr. Beaton will not consider uncourteous this statement, which is easily explained by our flower garden lying contiguous to a lake, and very exposed to north-east winds, merely to prove that what with Mr. Beaton is of service for production of spring cuttings may with me and others be cast away, is the object of—*CALCEOLUS*.

[Mr. Beaton only spoke of the extent of injury sustained by his own Geraniums, and we regret to hear that any one has suffered more than he did by that unexpected and severe frost.—EDS.]

HOUSE AND TOWN SEWAGE.

(Continued from page 115.)

HAVING shown the modes in which the sewage of a house may be collected and applied without offence to purposes of cultivation; and having made some unqualified assertions as to its value as a fertiliser, we will next produce some of the evidence by which we sustain those assertions.

We have tried house sewage as a manure to Potatoes, Peas, Beans, all the Cabbageworts, Asparagus, Rhubarb, Sea-kale, and Grass; and it has yielded us, of all of them, from a light soil resting on chalk, the best crops we have ever grown.

Our mode of applying sewage is to soak with it the ground previously to digging, and growing every crop in rows with wide intervals, to pour the sewage as we deem needful in gutters made with the hoe between the rows.

Mr. Cutlbert Johnson, of Waldronhurst, near Croydon, employs it chiefly for irrigating grass, and he obtains by its employment four or five heavy mowings annually. This is from a light, sandy soil.

Mr. Beaton, at Surbiton, uses it in the cultivation of his bulbs and others flowers with the utmost success; and until we applied it to Roses and Chrysanthemums they refused to excel on a chalky soil. Early in the present year, writing in these pages, Mr. Beaton said:—

"When a crop of anything is in rows, whether they be bedders or for the pot or table, liquid manure of any strength may be applied in the centre between the rows with less risk, or danger, than in any other way. I have often, with my own hands, poured down large quantities of the very strongest liquid manure between rows of plants, one drop of which would be destruction to any one of them if it touched the leaves or roots; but filtering to the roots through a few inches of soil all harm is avoided, which goes to show that a fair porous surface of earth is the best and safest fixer of ammonia and all over-strong matter in the liquid. Every one of my own bulbs, from *Crocus* to *Hesperanthus*, gets it every spring from a place which one would shudder at the idea of, and I never lose a leaf. I quite agree with clarifying liquid manure for pot culture, and in the hands of those who do not know practically what a plant can digest, or what the strength of their liquid is. But to keep a bed or border in good heart for a whole season at the least possible expense, have no recourse to clarifying the goodness out of the stuff, but give it to the plants fresh from the stable, cow-house, or piggery, or where it may be got much stronger, and one good soaking of it will last the whole of that season; the spring is the right time to apply it. Then, in June, if a handful of mould from below the surface is as good as a smelling-bottle, you may depend upon a good show of Roses and most bedding plants, if the beds wanted any assistance that way. The old florists who placed four or five inches thick of strong dung at the very bottom of their beds, and two feet below their plants, were much wiser in their generation than those of us who supply rotten dung on or near the surface. Mr. Rivers has been recommending, for a long time, one or two thorough good soakings of the richest liquid manure to the Rose-beds in the winter; and if Roses are ever to come out healthy on a thin, poor, sandy soil, that is just what will do it. When flower-beds and borders get exhausted by cropping, this strong liquid is very much better for them than rotten dung."

Mr. R. Moffatt, of Stirling, applied the sewage water of that town to grass land, a light soil and gravelly subsoil, at the rate of forty-five carts to the statute acre. The produce of hay from where the liquid was applied was 56 cwt. per statute acre; whilst from the part to which no liquid was applied, but equal in other respects, 28½ cwt. per acre.

Mr. Fortescue, in his Report to the General Board of Health

in 1852, states the information he gained during his visits to several farms where town sewage was extensively used. We shall not detail the processes of irrigation adopted, but give merely the results appearing at Craigen-tinney, about one mile and a half south-east of Edinburgh. "There are four cuttings of the grass in the year, and the collective weight of grass was stated at the extraordinary amount of 80 tons the imperial acre."

Until the year 1854 the outfall of the town sewer of Rugby was unavoidably carried into a stream before the mansion of G. R. Walker, Esq. He was advised that the most beneficial mode of getting rid of the nuisance was by distributing the sewage in pipes over his land. After visiting the farms of Mr. Kennedy and Mr. Telfer, at Ayr, and examining that also of Mr. Mechi, he made an offer, which was accepted by the town, for the whole of the sewerage for twenty years. When visited by the reporter in 1854, between 500 and 600 acres were under irrigation. Seven miles of pipes had been laid down, and five hydrants were kept constantly at work for the distribution by steam power. Mr. Walker stated that the nuisance was entirely abolished, and that he was so perfectly satisfied, that he was about to extend the area irrigated to about 700 acres, which would fully use the sewage from 700 or 800 houses. The results in the improved quality and increased quantity of the grass and the line of irrigation were perceptible at a distance, and by the resort of the sheep thither to feed by preference.

Mr. B. Webster, of Worcester, at a meeting of the Farmer's Club in February, 1855, said that he knew that land irrigated with night soil had been trebled in value; and at the same meeting Mr. Chadwick quoted an instance where, by the use of sewage, no less than 90 tons of Cabbages had been grown on a Scotch acre; and he added that there was no instance in which the corn crop had not been increased more than a quarter per acre.

At a meeting of the Society of Arts in December, 1856, for the special purpose of discussing the "Utilisation of Sewage," Mr. Mechi stated that he had found it beneficial to every description of crop, and so effective that where it was applied in considerable quantities he had seen its effects on subsequent crops for three or four years. But before applying liquid manure to clayey soils they ought to be well drained. On chalky, gravelly, and sandy soils any quantity of liquid manure may be put with good effect, especially for those quickly-growing crops which consume large quantities of food to sustain their rapid growth.

Mr. Smith, of Deanston, grew forty-three bushels of Barley per acre on land manured with sewage, and forty-six bushels on similar land manured with guano and farmyard manure, but the sewage cost only 10s., and the other manures three and four times that sum.

At a meeting of the Newcastle Agricultural Society in April, 1857, Mr. J. D. Ferguson stated that at the town of Mansfield, having 10,000 or 12,000 inhabitants, very extensive experiments had been made with sewage by the Duke of Portland, and the results were astounding: so much so, that land in that neighbourhood which, at one time, would not let for more than five or six shillings per acre yearly, now let at from twelve to fourteen pounds, in consequence of the sewage being diverted over the grass lands!—J.

(To be continued.)

THE VINES AT STOCKWOOD.

If our old friend Mr. Rattray had not rushed to a conclusion without a premise, he might have saved himself the trouble of defending the practice of Mr. Busby, which no one called in question. Even if in the hurry of writing, when there is no time to study and balance very nice distinctions of words, a slip should have taken place, it is a practice among friends to give the erring party an opportunity of correcting the error himself before at once conveying certain inuendos in print. Mr. Busby having removed from Stockwood, I might have described the place without alluding at all to the former gardener—a practice which I have always adhered to in describing other places, but which I broke through in the case of Stockwood, chiefly because Mr. Busby and I had lived so long on somewhat confidential neighbourly terms, as frequent allusions in THE COTTAGE GARDENER sufficiently attest; and also because the improvements in the place had been conducted under his superintendence. If any one can find in that description what is opposed to a genial,

kind feeling, they will find what I never intended to evince; as, in my opinion, descriptions of places should be so written that, if they do not do good, they at least shall do no harm.

Now to the complaint that I said, and that Mr. Peacock thought, the Vines were planted too deep. I never said anything of the kind. The words are,—“Mr. Busby, though growing fine crops, thought the leaves were too large; and Mr. Peacock also thought the roots were too deep.” Mr. Rattray evidently comes to the conclusion that having roots too deep and planting too deep are one and the same thing. But he thoroughly knows better. He is well aware that if no particular means are taken to prevent the roots getting down they will get down, however shallow you plant them at first. Does he know of no cases in which some of the best gardeners of the day, after planting shallowly in a well-drained border, have lifted their Vines after five or six years and found the principal feeding roots far beyond any atmospheric influence? I believe that such a result so far took place at Stockwood. Mr. Busby expressed that conviction to me and also to others several times; and if he thought it worth his while would, I am sure, confirm the statement. The last conversation we had on the subject was not long after the fruit exhibition in St. James's Hall, previously to the sending out of the *Golden Hamburgh* by Mr. Veitch. The *Golden Hamburgh* then exhibited was seen by hundreds, if not thousands; and, though showing its good properties, was far from equalling the splendid specimens exhibited, so far as I recollect, two years previously: but the time is a matter of little moment. Mr. Busby told me that numbers of gardeners said to him that he must have allowed the Vines to get too weak; and as he pointed to the strong wood and parasol-like leaves he said, “It is all they know about it—it is quite the reverse.”

From these and other remarks made in a neighbourly spirit, I have not a doubt that, had Mr. Busby remained at Stockwood, he would have raised and elevated the roots of those Vines which he planted at first so shallow.—R. FISH.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 117.)

PEARS.

HAMPDEN'S BERGAMOT (*Belle d'Août; Belle de Bruxelles; Belle sans Epines; Bergamotte d'Été Grosse; Bergamotte de Paysans; Ellanrioch; Fanfareau; Fingals; Great Bergamot; Longueville; Scotch Bergamot*).—Fruit above medium size, abrupt pyriform. Skin smooth, of a fine clear lemon yellow, strewn with dots and flakes of thin pale brown russet, and with a tinge of bright red on the side next the sun. Eye rather small, set in an uneven shallow basin. Stalk an inch long, inserted without depression. Flesh pure white, tender, melting, and juicy, sweet, and with a high aroma.

A fine showy and excellent early pear, ripe in the middle and end of August, but soon decays at the core.

Hardenpont d'Hiver. See *Glou Morceau*.

Hardenpont de Printemps. See *Bourré de Rance*.

Harvest Pear. See *Amiré Joannet*.

Hazel. See *Hessle*.

HELIOTE DUNDAS (*Rousselet Jamain*).—Fruit medium sized, pyriform, even, and regularly formed. Skin smooth and somewhat shining, lemon yellow, with a brilliant red cheek, dotted with large dark-red specks. Eye small, and deeply set. Stalk upwards of an inch long. Flesh white, half-buttery, and not very juicy; very sweet, piquant, and perfumed. Ripe in October, and soon rots at the core.

HENRI CAPRON.—Fruit medium sized, egg-shaped. Skin pale yellow, mottled with pale brown, sprinkled with flakes and dots of delicate russet. Eye nearly closed. Stalk three quarters of an inch long, stout. Flesh yellowish-white, buttery, and highly aromatic. Ripe in October and November.

Henri Quatre. See *Henry the Fourth*.

HENRIETTE BOUVIER.—Fruit about medium size,

roundish-obovate. Skin pale yellow, covered with patches and network of smooth cinnamon-coloured russet, and sometimes with an orange tinge next the sun. Eye small, and almost level with the surface. Stalk an inch or more in length, inserted without depression. Flesh very tender, buttery and melting, very rich and sugary, with a fine perfume.

A very fine pear, ripe in the beginning and middle of December.

HENRY THE FOURTH (*Henri Quatre; Jacquin*).—Fruit small, obtuse-pyriform. Skin greenish, pale yellow, considerably covered with pale cinnamon-coloured russet, and grey specks. Eye small and open. Stalk an inch long, obliquely inserted. Flesh white, rather coarse-grained, but very juicy and melting, with a rich, sugary, and aromatic flavour.

A most delicious little pear, ripe in September.

HESSLE (*Hazel; Hessel*).—Fruit below medium size, turbinate. Skin greenish-yellow, very much covered with large russet dots, which give it a freckled appearance. Eye small and open, slightly depressed. Stalk an inch long, obliquely inserted without depression. Flesh tender, very juicy, sweet, and with a high aroma.

An excellent market-gardening pear, ripe in October. The tree is a most abundant and regular bearer.

His. See *Baronne de Mello*.

Holland Bergamot. See *Bergamotte d'Hollande*.

Hubard. See *Beurré d'Amanlis*.

Huntingdon. See *Lammas*.

HUYSHE'S BERGAMOT—Fruit large, inclining to obovate. Skin tolerably smooth, considerably covered with russet. Eye somewhat open, moderately depressed. Stalk short, thick, and obliquely inserted in a narrow cavity. Flesh yellowish-white, exceedingly melting and juicy, somewhat gritty at the core; rich, sugary, and delicious.

A remarkably fine pear, in use in the end of December and January.

HUYSHE'S VICTORIA.—Fruit medium sized, oval and almost cylindrical, flat at the ends. Skin yellowish, freckled with russet. Eye small, set in a shallow depression. Stalk very short and thick, not deeply inserted. Flesh melting, rather gritty at the core, juicy, rich, and sugary, with a brisk acidity. In use during December and January, but not equal to the preceding.

Imperatrice de Bois. See *Flemish Beauty*.

L'INCONNUE (*L'Inconnue Van Mons*).—Fruit large and pyriform. Skin rough to the feel, greenish-yellow, covered with large grey dots and patches of cinnamon-coloured russet. Eye small and sometimes wanting, set in a deep basin. Stalk an inch to an inch and a quarter long, inserted without depression. Flesh yellowish, firm, very juicy, rich, and sugary, with an agreeable aroma.

A very excellent winter pear, ripe in February.

Inconnue la Fare. See *St. Germain*.

Isambert le Bon. See *Brown Beurré*.

Ive's Bergamot. See *Gansel's Bergamot*.

Jackman's Melting. See *King Edward's*.

Jacquin. See *Henry the Fourth*.

JALOUSIE DE FONTENAY (*Belle d'Esquerme; Jalousie de Fontenay Vendée*).—Fruit medium sized, obtuse-pyriform. Skin greenish-yellow, tinged with red on the exposed side, and covered with russet dots and patches. Eye closed. Stalk an inch long. Flesh white, buttery, melting, and richly flavoured. October and November.

JAMINETTE (*Austrasie; Bancaux; Belle d'Austrasie; Bergamotte d'Austrasie; Colmar Jaminette; Crassanne d'Austrasie; Josephine; Maroit; Pyrole; Sabine*).—Fruit medium sized, turbinate. Skin pale yellowish-green, thickly covered with brown dots, and marked with cinnamon-coloured russet next the sun and round the stalk. Eye open, set in a rather deep basin. Stalk

about an inch long, obliquely inserted. Flesh white, very juicy and melting, sugary and vinous.

A first-rate pear, in use from November to January.

JARGONELLE (*Beau Présent; Belle Vierge; Beurré de Paris; Chopine; Cueillette; Epargne; De Fosse; Grosse Cuisse Madame; Mouille Bouche d'Eté; Sweet Summer; St. Lambert; St. Samson; De la Table des Princes*).—Fruit large and pyriform. Skin smooth, greenish-yellow, with a tinge of dark brownish-red next the sun. Eye large and open. Stalk about two inches long, slender, and obliquely inserted without depression. Flesh yellowish-white, tender, melting, and very juicy, with a rich piquant flavour, and slight musky aroma.

A first-rate pear, ripe in August.

JEAN DE WITTE.—Fruit medium sized, obovate. Skin smooth, of a greenish-yellow colour, covered with numerous small grey dots, and a few markings of thin cinnamon-coloured russet. Eye small and closed, rather deeply set. Stalk an inch or more in length. Flesh yellowish, fine-grained, buttery, and melting, with a rich sugary flavour not unlike that of *Glou Morceau*.

A first-rate pear, in use from January till March.

JERSEY GRATIOLI (*Bedminster Gratioli; Norris' Pear*).—Fruit above medium size, roundish-obovate. Skin greenish-yellow, covered with large, rough, russet spots, and tinged with pale brown next the sun. Eye open, set in an even, shallow basin. Stalk an inch long, in a narrow cavity. Flesh yellowish-white, very melting, rich, sugary, and with a fine sprightly vinous flavour.

A very excellent pear, ripe in October.

JEWESS (*La Juive*).—Fruit medium sized, pyramidal. Skin of a uniform pale yellow colour, mottled with pale brown russet, and thickly covered with russet dots. Eye small and open, with short, erect segments even with the surface. Stalk about an inch long, stout, and tapering into the fruit, or obliquely inserted. Flesh yellowish, buttery, and melting, very juicy, sugary, and rich.

A most delicious pear, ripe in December.

Joannet. See *Amiré Joannet*.

John. See *Monsieur Jean*.

John Dory. See *Monsieur Jean*.

Joséphine. See *Jamiette*.

(To be continued.)

GOOD HARDY HOLLYHOCKS FOR GARDEN DECORATION.

Alice (Downie), primrose.
Annie (Chater), white, chocolate base.
Beauty of Cheshunt (Paul), light red.
Beauty of Walden (Chater), rosy carnine.
Black Prince (Gibbon) black.
Celestial (Paul), clear blush.
El Dorado (Paul), bright golden yellow.
Empress (Chater), fawn & apricot.
Lady Franklin (Paul), deep pink.
Lady Tarleton (Paul), flesh, white edges.
Lilac Queen (Chater), lilac blush, purple base.

Memnon (Paul), beautiful light crimson.
Mrs. Oakes (Bircham), shaded salmon.
Purple Perfection (Bircham), light purple.
Queen of the Buffs (Chater), pale buff.
Queen of the Yellows (Paul), pale yellow.
Sir Colin Campbell (Paul), scarlet crimson.
Walden Rival Improved (Chater), orange, shaded with crimson.
Walden Masterpiece (Chater), lemon, shaded with pink.
White Globe (Paul), white.

—W. PAUL, Cheshunt.

NEW OR RARE PLANTS.

RHODODENDRON NUTTALLII (*Mr. Nuttall's Rhododendron*).

SIR W. Hooker thus describes this magnificent plant:—"As *Victoria regia* is justly considered the Queen of Water-lilies, so the plant here represented may with equal justice be called the Prince of Rhododendrons. Yet our figure, though on a quarto size, does no justice to the plant itself, as it flowered in the Rhododendron-house at Kew in May of the present year, and of which a drawing of the flowering portion, on imperial folio, is now before us. The height was nine feet. The principal branch was terminated by a corymb of ten or twelve flowers, the

cluster measuring fifteen inches across; the corollas white, yellow in the centre, having measured six inches across, with a tinge of blush on the lobes; and the bud, just before expansion, is of the same length. The leaves have their charms too: the largest of them a foot long, including the short, thick petiole, are much puckered on the superior surface—that is, swollen or blistered in the areoles of the network, and these reflect a strong light. Nor does this include all the beauties of the plant. The corymb, long before it is developed, is enclosed within a scaly bud, if I may so call it, six inches long and nearly four inches in diameter, very much resembling a Pine-cone or the flower-head of some South African proteaceous plant; and the large deciduous scales are richly coloured too, almost white below, deep-rose in the centre, and tipped with green. Somewhat similar but smaller scale-buds envelope the infant foliage, which, too, is red when it first bursts forth. Such a *Rhododendron* well merits the name of the late Mr. Nuttall, given to it by its discoverer, Mr. Booth; and we know that but a little before his lamented death, one of the last sources of pleasure he derived from the vegetable creation, which he had so long and so successfully studied, was the information of his namesake having for the first time flowered (at Kew), and the sight of the large drawing above referred to. The species was discovered by Mr. Booth in the 'Duphla Hills, at Meré Patao, about Seram's village, on the banks of the Papoo, Bhotan, growing in swampy grounds, among Yews and Oaks, sometimes epiphytically on trees, and at an elevation of from 4000 to 5000 feet above the sea-level.' We have seen a drawing of a specimen in the possession of Mr. Standish which flowered on the Continent; and Lady Dorothy Nevill informs us she has a plant showing flower at this time (October, 1859).—(*Botanical Magazine*, t. 5146.)

BRYOPHYLLUM PROLIFERUM (*Proliferous Bryophyllum*).

Native of Madagascar, a crassulaceous plant more curious than beautiful.—(*Ibid.* t. 5147.)

HOYA CUMINGIANA (*Mr. Cuming's Hoya*).

A climber, native of the Malay Islands, imported by Messrs. Low, Clapton Nursery. Flowers yellow, purple in the centre.—(*Ibid.* t. 5148.)

DISSOTIS IRVINGIANA (*Dr. Irving's Dissotis*).

Sir W. Hooker says:—"From tropical Western Africa, whence I received specimens from the late Dr. Irving, gathered in Abeokuta, and, more recently, both seeds and specimens from the late Mr. Barter, while Botanist to the Niger Expedition. Both these travellers have since fallen a sacrifice to the climate; the former more especially in the cause of humanity, the latter to the love of science and the arduous duties under his energetic friend and most successful commander of the Expedition, Dr. Baikie. During upwards of two years' exposure to the climate, Mr. Barter enjoyed excellent health, under the most perilous and trying circumstances, and it is only recently that the news of his death has reached England, from a rapid attack of dysentery, at Rabba, and while surrounded with comparative comforts:—the first death that has occurred (such have been the care and attention devoted to health) among Dr. Baikie's small party. Our readers will be glad to learn, that on the official news of the death of Mr. Barter having reached the Foreign Office, the First Secretary of State of that department, Lord John Russell, immediately gave instruction for a successor to be appointed; and Mr. Gustave Mann, one of the very intelligent Hanoverian gardeners of the Royal Gardens of Kew, will sail on the 24th of this month for Lagos, where preparations are making for his ascent of the Quorra to Rabba, where Dr. Baikie awaits his arrival."—(*Ibid.* t. 5149.)

CATTLEYA SCHILLERIANA, var. *CONCOLOR* (*Schiller's Cattleya*, whole-coloured variety).

Imported from Brazil by Messrs. Backhouse and Son, York Nursery. Flower reddish-purple, margin of lip white.—(*Ibid.* t. 5150.)

VARIETIES.

TRAVELLERS' FARE IN THE PIEDMONTESE ALPS.—The hot springs of St. Didier, though not sulphurous, are, with the good baths and hotels established there, a considerable rival to the attractions of Courmayeur for the Italian visitors. Embosomed in shady trees and fragrant meadows, under the high overhanging precipices of the Cramont, with the snow-peaks of Mont

Blanc closing in the view and diffusing a delicious coolness, the pure air must be an indescribable relief after the hot glare of Turin, and the endless dusty roads, Mulberry Poillards, and Maize fields of the plains; especially to invalids whose system requires bracing. To these attractions it must be indebted for its popularity rather than to the very mild virtues of its waters, the principal of which is, that they constantly supply ready baths of hot water, which issues from a spring in the ravine of the Doire, at a temperature of 95°. It contains, I believe, no iron, and very slight traces of magnesia or other salts. The little party at Bertolini's were pleasant, well-informed people, who wisely preferred the quiet of the "Royal" to the crowded "Angelo," where, at the table-d'hôte, some sixty to eighty people sat down daily, in full dress, which seemed to occupy most of their time, as their costumes were changed half a dozen times a day. Along with this taste for dress, so strangely out of place here under Mont Blanc, the Turinese seemed to take an especial pleasure and pride in keeping up their barbarous broad Italian dialect, which one would have imagined the refinement of the capital would long since have banished for the pure Tuscan. Bertolini's great ambition was to get the custom of English travellers in preference to his own countrymen; and, notwithstanding much that unfortunately may too truly be said as to the grumbling, discontented, and exacting behaviour of many of the former, we found here, as elsewhere, that they were far surpassed in these qualities by the Piedmontese, and their company greatly preferred, not for the supposed long purse only. Bertolini's efforts to please and to provide liberally for his visitors deserved every praise. He treated us more like guests, and, what always contributes to the well-doing of an hotel more than anything else, he attended to everything himself. The difficulty of providing not only luxuries, but even necessities, at Courmayeur, is greater than would be at first imagined, and the hotels are dependent on Turin for the greatest part of their supplies. The table-d'hôte on our return seemed absolute luxury after our late fare, and E—— made a note of our first dinner. The usual soup was followed by slices of sausage, the a noble dish of Potatoes came in to be eaten with butter, next followed boiled fowls, and a purée of Tomatoes; then in successive relays, chamois *au vin de Madère*, pickled trout with Lettuces, stewed "cousses" or small Pumpkins, roast hare and salad, Haricots in their pods boiled entire, roast mutton with "poivrons" or large Capsicums, stewed Pears, Grapes, Peaches, and confectionery, and good Aostan wine, with sparkling water from La Victoire,—the charge only four francs a-head. Chamois are not scarce here, and when served at table may be relied on as the genuine animal, instead of the goat's flesh palmed off on unsuspecting travellers at every hotel in Switzerland, though it does not require much experience to tell the difference. We saw the one of which we partook as it was brought in by a chasseur from the Allée Blanche. It was a fine buck, but the price asked, fifty francs, was enormous, though he took something less. The bouquetin has already been mentioned, but its flesh is very rarely to be had anywhere, the penalties against its destruction being so heavy. Hares are abundant, especially the Alpine species, which are white in winter. The brown hare is, however, much the better eating, the other being lean and dry, like the Alpine hare of our own Highlands. Ptarmigan are found on the high mountains, and black game are plentiful in the season, which is, however, late, not commencing until October; the young birds being hatched so far on in the season. I was assured that in the forests they get up thirty or forty at a time, and was strongly urged to return for the "chasse." Bears and wolves are not yet extinct, but keep lower down the valley, among the dark forests of the Val d'Aosta. The trout with which our table was constantly supplied came all the way from the Lac de Tignes, a small mountain loch, high up in the Isèran district. Twice a week a man brought them in a creel on his back, by a short cut across the mountains, to the Little St. Bernard, and thence to Courmayeur. His load varied from four kilogrammes* to eight, and even occasionally ten. For carrying them he got fifty sous and his food, whatever the weight of his load. The competition between the two hotels had raised the price, which was then fifty sous to three francs per pound, so that they are an expensive luxury, yielding little or no profit. But I was told here, as elsewhere in the Alps, that "les Anglais" invariably asked for trout the first thing, associating them, I suppose, as a matter of course, with mountain streams, utterly regardless of glaciers and ice-water; so that an idea apparently prevails that an Englishman cannot possibly get

* A kilogramme is 2 lbs. 3 ozs. 4 4-5 drs. avoirdupois.

on without trout. The trout of the Lac de Tignes are small, and what Scotch fishermen call "herring size," and of a light silvery colour, with minute red spots very thickly set. I prepared the skin of one side of an average-sized one, stretching and drying it in the sun with a little varnish, so as to preserve its characters. They are quite different in appearance from the river trout of Piedmont. Very few of the latter are found in the Doire, until some distance further down, where the chilling torrents of melted ice and snow become warm and purified, so as to supply water-larvæ and insects for their food. Courmayeur produces some good vegetables, and the Haricot, a good index of climate in these valleys, ripens well. The Peas are peculiar, having a very large curly pod, in which they are boiled whole. Pumpkins and Gourds also come to some size, and when as large as an egg are used in great quantities, under the name of "cousses," fried in slices, stewed in gravy, mashed, and in a variety of ways, and are excellent. Fruit is chiefly brought from Turin, such as Grapes and Melons. Large green Capsicums, or "Poivrons," are a favourite accompaniment with meat, and dried a little first and then pickled slightly, make a handsome dish. Tomatoes were plentiful, but obtained from Genoa and Turin. We had very fine Peaches from Ivrea; in external appearance and rich orange colour exactly like a very large Apricot, or *Abricot Pêche* of the French, and only recognisable as a Peach by the stone. Every one who has travelled in North Piedmont is familiar with the "gressins," or long pipes of crisp biscuit-like bread, resembling thick brown macaroni, which are brought to table at every hotel in large sheaves, and are the most pleasant and amusing way of eating bread possible. We were curious to know how they were made, and, through Bertolini, were soon initiated into the mystery by the chief baker of Courmayeur. We saw the process from first to last, and they very civilly wrote out for us a very intelligible receipt, which I subjoin exactly as it was given us.* The paste was fermented in wooden bowls, in lumps kept constantly moistened; then spread out as required for use, into a thick oblong sheet, which was cut into pieces rather thicker than, and as long as, a finger, and laid side by side on a moistened board. Each piece in turn was taken up at either end with the fingers and thumbs, and steadily and quickly drawn out to the right length—about two feet. A long thin wooden shovel is sprinkled with coarse meal, and the gressins laid on, put into the oven, and adroitly slipped off the board, and left a short time to bake, when they are as dexterously withdrawn, fit for use after cooling so as to become perfectly crisp. We stayed some time watching the process, as we had so often heard wonder expressed as to how they were made; it is, however very simple, and we made some very presentable ones after a few attempts, which caused great amusement to the people of the "boulangerie," who were most good-natured and obliging, entering into the fun heartily, and proud to show everything.—(*King's Italian Valleys of the Pennine Alps*.)

TO CORRESPONDENTS.

DRAWING PLANS OF BEDS (*A Lover of the Garden*).—We wish we could help you, but do not see how. The book you mention is worthless. Loudon's "Self-Instructor" gives some good directions how to draw mathematical figures.

DWARF FIG TREES (*Arboretum*).—You will find full directions in Mr. Rivers's "Orchard House," the sixth edition of which is just published. Soap-suds are beneficially applied to Vines under glass. We give them something stronger—house sewage.

IDEAS ABOUT BEDDING (*A Subscriber*).—We never keep back a new idea longer than the time it may be necessary to find room for it in our pages; but we shall think over your request, and see what will come to us in our dreams. All our best hits come without an effort on our part—we have visions of them.

FLOWER GARDEN PLANTING (*Cymro*).—You have planted that style of gardening exceedingly well—it does you great credit. You omitted No. 1 bed, but a planter like you would not put up a blazing colour in the centre of a composition. (*R. A.*)—What is it you call White Vetch? Your borders are capitally planted for next year. In No. 2 the Dahlias must not be so dwarf as *Zelindas*, behind the scarlet *Salvia* and white *Pentstemon*. In No. 3 *Lobelia gracilis* is a bad edge anywhere, except up in a vase or basket; but it gives one no trouble. In Nos. 5, 6, 7, and 8, one would need to know thoroughly the sizes and habits of any number of

* Manière de faire les gressins.—1. Dans 10 killo, de farine il faut mettre un demi killo, de levain. 2. Farine de froment, première qualité. 3. La pâte un peu dure. 4. Les laisser lever 4 heures dans une chambre fermée. 5. Il faut, avant de les mettre lever, les couper en petits morceaux comme un doigt, et les disposer deux à deux sur une planche mouillée. 6. Lorsqu'ils sont levés on les prend par les deux bouts, et on les tire de la longueur de 3 ampares (main ouverte). Dans dix killo, il faut mettre une poignée de sel. Il faut les mouiller de temps en temps avant de les mettre au four avec de l'eau chaude.

Verbenas to be mixed in beds; in long borders it is not so particular. In Nos. 11 and 12, *Flower of the Day* and variegated *Alyssum* mixed are not to our eyesight, except in dull weather, two good things to form a medium. No. 13. You mention a dark crimson *Calceolaria*. We never saw a dark, or a light, or a medium, or any crimson whatever, in any bedding *Calceolaria*. They are browns, buffs, and foxies, but not crimsons; and why deceive ourselves in them, and in *Chrysanthemums*, by calling names of colours we sigh for in them, as yet, in vain?

INVERMINED GARDEN (*J. P.*, *Liverpool*).—Your garden seems to be so infested with various grubs and wireworms, that we recommend you to adopt the radical remedy of paring and burning six inches deep of the entire surface. You can do this by degrees, but complete the whole before the spring arrives.

VARIOUS (*H. B.*).—The Passion-Flower is *Passiflora corulea*. Turn out a young plant against your wall in April or May. Give it good fibry loam and a little peat, or very rotten dung to grow in, and encourage it with water as wanted; but give little or none after September, and keep rain from the roots if heavy. This will ensure, first, strength and then ripeness of wood. For the first or second winter, we would advise wrapping the stem in a piece of mat to render doubly sure. You have given your *Dandys* rather too much wet. Rub off the excrescences (you might propagate from them if anxious), and give your plants a little more heat, more air, and just enough of water to keep them going, and they will soon get all right. Your plants will not suffer in the least from painting the outside of the pots of a stone colour. We do so annually. **THE COTTAGE GARDENER** was the first to break in on the old favouritism for soft-burned, porous, red pots. When drainage was neglected, such pots might be useful; but when the drainage is attended to, and the soil used fibry and open, it matters not how hard a pot is burned, or of what its outside is composed. Your stone-colour paint upon the pots will render the pots cooler in summer and warmer in winter than the common red pots. We are glad you have succeeded with your gas-heated boiler. Some friends would like more details, a rough plan, and an estimate of expense for gas, &c. We see nothing preventing you to have a propagating tank by means of the pipes, or a hotbed, by placing rough clinkers, &c., round the pipes instead of water.

BOOK ON FRUIT CULTURE (*An Amateur, Kent*).—Buy our "Fruit Gardening for the Many." Your other questions will be answered next week.

NAMES OF FERNS (*J. M.*).—1. *Asplenium trichomanes*. 2. *Lastræa dilatata* v. *dumetorum*. 3. *Cystopteris fragilis*. 4. *Lastræa filix-mas*. 5. *Polystichum aculeatum lobatum*; seedling, probably. 6. *Lastræa filix-mas*. 7. *Polystichum aculeatum lobatum*; young. 8. *Polystichum aculeatum lobatum*; nearly full grown. 9. *Lastræa filix-mas incisa*.

NAME OF PLANT (*A. R.*).—It is as you rightly suppose not a *Babiana*, but *Oxalis rubella*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

NOVEMBER 28th, 29th, and 30th, and DECEMBER 1st. **BIRMINGHAM.** *Sec.*, Mr. J. Morgan, Bingley Hall, Birmingham.
DECEMBER 13th. **NEWPORT** (MONMOUTHSHIRE). *Sec.*, Chas. H. Oliver, Commercial Street, Newport, Monmouthshire. Entries close Nov. 30th.
DECEMBER 28th and 29th. **SHEFFIELD AND HALLAMSHIRE** (Fancy Pigeons). *Sec.*, Mr. Inman New, Sheffield. Entries close December 12th.
DECEMBER 28th and 29th. **POULTON-LE-FYLDE.** *Sec.*, Mr. J. S. Butler.
JANUARY 4th and 5th, 1860. **PRESTON AND NORTH LANCASHIRE.** *Sec.*, Henry P. Watson, Old Cock Yard, Preston. Entries close December 17th, 1859.
JANUARY 7th, 1860. **BRADFORD.** (Single Cock Show.) *Secs.*, Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford.
JANUARY 11th, 1860. **DEVIZES AND NORTH WILTS.** *Sec.*, Geo. Saunders Sainsbury, Rowde, Devizes. Entries close December 24th.
JANUARY 31st and FEBRUARY 1st and 2nd. **CHESTERFIELD AND SCARSDALE.** *Hon. Secs.*, Mr. J. Charlesworth, and Mr. T. P. Wood, jun.
FEBRUARY 11th to 15th, 1860. **CRYSTAL PALACE** (Poultry and Pigeons). *Sec.*, Mr. W. Houghton. Entries close Jan. 14th.
N.B.—Secretaries will oblige us by sending early copies of their lists.

BIRMINGHAM POULTRY SHOW.

(BY EXPRESS.)

THIS began on the 28th inst., and will close on the 1st of December. We shall publish our comments next week.

DORKINGS (Coloured).—First and Cup, Capt. Hornby. Second, Mr. Berwick. Third, Mr. Lingwood. Fourth, Mr. Drewry. **Dorking Hens**.—First, Capt. Hornby. Second, Mr. Bromley. **Chickens**.—First, Mr. C. H. Wakefield. Second, Capt. Hornby. Third, Rev. J. Shaw. Fourth, Rev. J. Hill. **Dorking Pullets**.—First, Mr. Bromley. Second, Mr. C. H. Wakefield.

DORKINGS (White).—First, Mr. Robinson. Second, Mr. Hutton. **Chickens**.—First, Rev. Mr. Hutton. Second, Capt. Beardmore.

SPANISH.—First, Mr. J. C. Hall. Second, Mr. Rake. Third, Mr. Felton. Fourth, Mr. Wells. **Spanish Hens**.—First, Mr. Lamb. Second, Mr. Wells. **Chickens**.—First and Cup, Mr. Teebay. Second, Mr. Rake. Third, Mr. Hyde. Fourth, Mr. Moore. **Spanish Pullets**.—First, Mr. Hyde. Second, Mr. Rake.

COCHIN-CHINA.—First and Cup, Mrs. Tomlinson. Second, Mr. Stretch. Third, Mr. Watkins. **Chickens**.—First, Mr. Gilbert. Second, Mr. Tomlinson. Third, Mr. Stretch.

COCHIN-CHINA (Grouse and Partridge).—First and Cup, Mr. Stretch. Second, Mr. Cartwright. Third, Mr. Felton. **Chickens**.—First, Mr. Cartwright. Second, Mr. Stretch. Third, Mr. Lamb.

COCHIN-CHINA (White).—First, Mr. Lamb. Second, Mr. Young. **Chickens**.—First and Second, Mr. Chase.

BRAHMA POOTRA.—First and Second, Mr. Teebay. *Chickens.*—First, Mr. Teebay. Second, Mr. Friar.

POLANDS (Black with White Crests).—CUP and Second, Mr. Edwards Third, Mr. Battye. *Chickens.*—First and Second, Mr. Battye. Third, Mr. Ray.

POLANDS (Golden).—First and CUP, Mr. Dixon. Second, Mr. Adkins. Third, Mr. Robins. *Chickens.*—First and Third, Mrs. Pettat. Second, Mr. Adkins.

POLANDS (Silver).—First, Colonel Clowes. Second, Mr. Dixon. Third, Mr. Adkins. *Chickens.*—First, Mrs. Pettat. Second, Mr. Adkins. Third, Mr. Dixon.

POLANDS (any other variety).—First, Colonel Clowes. Second, Mr. Bird.

HAMBURGH (Golden-pencilled).—First, Mr. Worrall. Second, Mr. J. Martin. Third, Miss Harvey. *Chickens.*—First and CUP, Miss Munn. Second, Mr. Carter. Third, Miss Parkinson.

HAMBURGH (Golden-spangled).—First, Mr. Lane. Second, Mr. Dawson. Third, Mr. Broadhead. *Chickens.*—First and CUP, Mr. Kershaw. Second, Mr. Worrall. Third, Mr. Ashton.

HAMBURGH (Silver-pencilled).—First and Second, Mr. Keable. Third, Mr. E. Archer. *Chickens.*—First and CUP, Mr. Keable. Second, Miss Munn. Third, Mr. Hancock.

HAMBURGH (Silver-spangled).—First and CUP, Mr. Dixon. Second, Mr. Crawford. Third, Mr. Ludlam. *Chickens.*—First, Mr. Bird. Second, Mr. Beale. Third, Mr. Tait.

HAMBURGH HENS (of any variety).—First, Mr. Clayton. Second, Mr. Davis. Third, Mr. Carter. *Chickens.*—First, Mr. Rutter. Second, Mr. Beale. Third, Mr. Mapplebeck.

GAME (White and Piles).—First, Mr. J. Camm. Second, Mr. Sabine. Third, Mr. Robinson. *Chickens.*—First, Colonel Blackburn. Second, Mr. J. Camm. Third, Mr. Gulsby.

GAME (Black-breasted and other Reds).—First, Mr. Baker. Second, Capt. Hornby. Third, Mr. Swift. Fourth, Mr. Dawson. *Chickens.*—First and CUP, Mr. R. Woods. Second, Mr. E. Archer. Third, Mr. France. Fourth, Mr. Dubble.

GAME (Black and Brassy-winged).—First, Mr. Dawson. Second, Mr. Nunn. Third, Mr. Ballard. *Chickens.*—First, Mr. Dawson. Second and Third, Mr. E. Lowe.

GAME (Duckwings).—First and Third, Mr. Doncaster. Second, Mr. Dawson. *Chickens.*—First, Mr. Baker. Second, Hon. W. W. Vernon. Third, Mr. J. Grimshaw.

GAME HENS (of any variety).—First, Mr. Swift. Second, Mr. Grimshaw. Third, Mrs. Smith. *Chickens.*—First, Mr. Moss. Second, Miss Cargie. Third, Mr. R. Clayton.

MALAY.—First, Mr. Leighton. Second, Mr. Saunders. *Chickens.*—First, Mr. Brook. Second, Mr. Leighton.

CLASSES FOR SINGLE COCKS.

DORKING.—First, Dr. Hewson. Second, Captain Hornby. Third, Mr. Drewry.

SPANISH.—First, Mrs. Stowe. Second, Mr. Felton. Third, Mr. Rodbard.

COCHIN-CHINA.—First, Mr. Chase. Second, Mr. Bates.

BRAHMA POOTRA.—First, Mr. Fowler. Second, Mr. Craigie.

POLAND.—First and Second, Mr. Adkins.

HAMBURGH (Golden-spangled).—First, Mr. Worrall. Second, Mr. Broadhead.

HAMBURGH (Golden-pencilled).—First, Miss Munn. Second, Mr. Lowe.

HAMBURGH (Silver-pencilled).—First, Mr. Harding. Second, Mr. Kerr.

HAMBURGH (Silver-spangled).—First, Mr. Cargie. Second, Mr. Jackson.

GAME.—First, Mr. Dawson. Second, Mr. Woods. Third, Capt. Hornby.

GAME COCK SWEEPSTAKES.—First, Hon. W. W. Vernon. Second, Mr. Hindson. Third, Capt. Hornby.

BANTAMS (Gold-laced).—First and CUP, Mr. Leno. Second, Mr. Punchard.

BANTAMS (Silver-laced).—First, Mr. Leno. Second, Mr. Peters.

BANTAMS (White).—First, Mr. Hardy. Second, Mr. Lowe.

BANTAMS (Black).—First, Mr. Worrall. Second, Mr. Bradwell.

BANTAMS (Game).—First and CUP, Mr. Hawkesley. Second, Mr. Cheeseman. Extra Prizes.—Mr. H. Bayley and Mr. Mapplebeck.

ANY OTHER VARIETY.—First, Mr. Bayley. Second, Mr. Hawkesley.

GESE (White).—First, Mr. Price. Second, Mr. Manfield. Third, Mr. Burnett.

GESE (Grey and Mottled).—First and CUP, Mr. Fowler. Second, Mrs. Blair. Third, Mrs. Seamons.

DUCKS (Aylesbury).—First and third, Mr. Fowler. Second, Mrs. Seamons.

DUCKS (Rouen).—First and CUP, Mr. Breavington. Second, Mr. Fowler. Third, Mr. Evans.

DUCKS (Buenos Ayrean).—First, Miss Clifton. Second, Mr. Beasley.

ANY OTHER VARIETY.—First, Mr. Stansfield. Second, Mr. Dixon.

TURKEYS.—First and CUP, Mr. Dolby. Second, Mr. Mear. Third, Mr. Brown. *Poult.*—First, Rev. T. L. Fellowes. Second, Mrs. Fookes. Third, Mr. Smith.

GLASGOW EXHIBITION OF PIGEONS AND CANARY BIRDS.

THIS Exhibition, held under the direction of the West of Scotland Ornithological Association, took place on the 18th and 19th inst.

A SILVER CUP, presented by Mr. James Huie, Glasgow, for the best Three Pens of Pigeons,—viz., one pair each, Carriers, Powters, and Short-faced Almond Tumblers.—J. Millar, Camlachie.

A SILVER MEDAL, presented by Mr. James Moffat, Edinburgh, for the best Two Pens of Pigeons,—viz., one pair each, Dragons, and Black Fantails.—S. Miller, 8, Silver Street, Notting Hill, near London.

"A Treatise on the Art of Breeding Fancy Pigeons," (by J. M. Eaton, of London), presented by the Committee as a First Prize to the Exhibitor of the greatest variety of Pigeons, and Six Life-sized Portraits of Pigeons as a Second Prize.—First, W. Cannan, Bradford. Second, W. Smith, Halifax.

PIGEONS.—*Powters* (Black Cocks).—First, J. Millar, Camlachie, Glasgow. Second, J. Huie, Glasgow. *Powters* (White Cocks).—First and Second, G. Ure, Dundee. *Powters* (Blue Cocks).—First, G. J. Maclean, Edinburgh. Second, J. Penton, Stewarton. *Powters* (Red Cocks).—First, G. Ure, Dundee. Second, W. Cannan, Bradford. *Powter Cocks* (other colour).—First, J. Millar, Camlachie, Glasgow. Second, J. Huie, Glasgow. *Powters* (Black Hens).—First, G. Ure, Dundee. Second, W. Smith, Halifax. *Powters* (White Hens).—First, W. Cannan, Bradford. Second, G. Ure, Dundee. *Powters* (Blue Hens).—First, J. Huie, Glasgow. Second, W. Smith, Halifax. *Powters* (Red Hens).—First and Second, G. Ure, Dundee. *Powter Hens* (other colours).—First, G. J. Maclean, Edinburgh. Second, J. Huie, Glasgow. *Carriers* (Black Cocks).—First, Lord Binning, Millerstain, Kelso. Second, W. Cannan, Bradford. *Carriers* (Dun Cocks).—First, W. Cannan, Bradford. Second, W. Smith, Halifax. *Carriers* (Black Hens).—First, Lord Binning, Mellerstain, Kelso. Second, W. Smith, Halifax. *Carriers* (Dun Hens).—First, J. Craig, Gourrock. Second, W. Cannan, Bradford. *Almond Tumblers* (Short-faced).—First, A. Renfrew, Glasgow. Second, W. Cannan, Bradford. *Tumblers* (Short-faced, other colours).—First, J. Percival, London. Second, W. Cannan, Bradford. *Fantails.*—First, G. Ure, Dundee. Second, Lord Binning, Millerstain, Kelso. *Jacobins.*—First, J. Greig, Innellan. Second, A. Moffat, Edinburgh. *Trumpeters.*—First, J. Morrell, Sunderland. Second, G. Ure, Dundee. *Barbs.*—W. Cannan, Bradford. Second, W. Smith, Halifax. *Turbits.*—First and Second, I. Monkhouse, Kendall. *Owls.*—First, W. Smith, Halifax. Second, G. Goore, Liverpool. *Other breeds and varieties.*—First, Lord Binning, Mellerstain, Kelso (White Carriers). First, W. Smith, Halifax (Dragons). First, Y. H. Hewett, Kent (Nuns). Second, Y. H. Hewett, Kent (Priests). Second, G. Goore, Liverpool (Magpies). Second, J. Monteith, Burnbank (Runts).

CANARY BIRDS.—Special Prize (Silver-plated Teapot), for pair of *Scotch Fancy.*—P. Alexander, Bridge of Weir. *Yellow Cocks.*—First, J. Carter, Kilmarnock. Second, A. Shaw, Glasgow. Third, A. Ferguson, Kilmarnock. Fourth, I. Mackenzie, Thornliebank. *Buff Cocks.*—First, N. Maclean, Glasgow. Second, H. Todd, Paisley. Third, W. Hunter, Kilbirnie. Fourth, M. Davidson, Glasgow. *Yellow Hens.*—First, A. Shaw, Glasgow. Second, R. M'Geachy, Glasgow. Third, G. Grant, Paisley. Fourth, A. Shaw, Glasgow. *Buff Hens.*—First, H. Todd, Paisley. Second, A. Ferguson, Kilmarnock. Third, W. Armstrong, Thornliebank. Fourth, J. Robertson, Kirkaldy. *Yellow Cocks.*—First, J. Simpson, Edinburgh. Second, J. Ruthven, Glasgow. Third, A. Millar, Kilmarnock. *Buff Cocks.*—First and Third, J. Simpson. Second, J. Ruthven, Glasgow. *Yellow Hens.*—First and Third, J. Simpson, Edinburgh. Second, G. Buchanan, Glasgow. *Buff Hens.*—First and Second, G. Buchanan, Glasgow. Third, J. Simpson, Edinburgh. *Yellow Cocks.*—First, J. Conn, Kilwinning. Second, S. Brown, Glasgow. Third, J. Simpson, Edinburgh. *Buff Cocks.*—First and Third, S. Brown, Glasgow. Second, W. Greenlees, Lochwinnoch. *Yellow Hens.*—First, R. Gardener, Glasgow. Second, R. Laurie, Glasgow. Third, M. Henderson, Ardrossan. *Buff Hens.*—First, J. Baillie, Kilmarnock. Second, R. Crawford, Kilbirnie. Third, J. Conn, Kilwinning. *Yellow Goldfinch, Mule Cocks.*—First, M. Henderson, Ardrossan. Second, J. Simpson, Edinburgh. *Buff Goldfinch, Mule Cocks.*—First, D. Young, Dunfermline. Second, J. Meldrum, Glasgow. *Foul Specimens, Scotch Fancy.*—Prize, G. Bennie, Perth. *Ditto, Belgian Fancy.*—Prize, J. Birkett, Dundee.

COCKS' EGGS.

It is a circumstance that not unfrequently happens in the poultry-yards of many, that small eggs are found scarcely larger than a marble in size, and containing no yolk. These little eggs are commonly known as cocks' eggs, and I have found it gravely asserted in some old poultry writings that they are actually the produce of cocks; but such errors have been long exploded, and they are now well known to be laid by hens. I have had such deposited by young pullets when they first commenced laying, as, also, by old hens at the end of a clutch.

Hens when they have attained a good old age and discontinue laying are reported to assume the male plumage. This is more common in hen Pheasants; and on dissection such have generally been found to be defective, or diseased, in their egg-producing organs. It has been asserted on good authority, that even young hen Pheasants when similarly diseased have assumed an approximation to the male plumage; but I have not heard of such a case among pullets of the domestic fowl, though, possibly, such may have occurred.

Mr. R. Wright, in THE COTTAGE GARDENER of November 1st, says, "that which I call a cockerel has just commenced laying, and he has no doubt he shall be able to supply me with a batch of her eggs in the course of a fortnight;" but I do doubt his capability of doing so. Firstly, because I am not a believer in cock's eggs; and secondly, if she were really a pullet, the assumption of male plumage would indicate the impossibility of her laying. The mere finding of an egg supposed to be laid by her is no proof of her actually having done so where other hens had access to the same place; and even were he to place the bird in a place by itself, others interested, yet unknown to him, might deceive,

by placing an egg as if laid by her; or the bird in question may not be recognised by Mr. Wright. Her change of plumage may have escaped his notice, and a veritable pullet may by this time be supposed by him to be the bird he exhibited in pen 22 at the Crystal Palace. After having noticed that bird, I returned to the pen again at the Show and closely examined it, and I am convinced that that bird was a backward cockerel and not a pullet. I only regret I did not call the attention of some one else to the fact; but Mr. Wright's supplying me with eggs would not be a proof that he was not in error, or that those eggs were actually laid by that identical bird.

I should not have again referred to this cocks'-egg affair had it not been for "JUSTICIA'S" remarks in *THE COTTAGE GARDENER* of the 15th instant, where he says that my ill-judged doubts are so "conclusively settled, and after a fashion that must remove all scepticism" even from my mind. But such is very far from the fact. I cannot perceive the proof, and I am compelled to believe the evidence of my eyes. Mr. Wright, in making the bird lay so soon, has more than confirmed my former opinion. As to "JUSTICIA'S" banter, I shall only reply it does not hurt me; and, if he finds amusement in it, well and good. In his remark relative to the combination of *striped* hackles and *clear* tails in what are commonly called Silver-spangled Hamburgs he says, "It is admittedly difficult to obtain;" which is all I care about, as exceptions prove the rule. But I still doubt if I should find many at Birmingham, Liverpool, or even the north-country shows; for if so general, how was it there were none at the Crystal Palace? or that I have never seen any except in drawings?

I am obliged to "H. M., Glasgow," and "W. H., Exeter," for their remarks on the origin of the red-backed or Birchen Duckwing Game, which fully confirm my opinion.

I consider your reply to "AN AMATEUR," as to what are considered pure colours in Game fowls to be very good, though I have my doubts if Brown-breasted Reds are a pure colour or a composite.

Some persons use the terms Black-breasted Reds and Black Reds as synonymous; but the first is a pure or original colour, while the latter is a cross between Red and Black.—B. P. BRENT,

BROMYARD AGRICULTURAL SOCIETY'S POULTRY SHOW.

THIS Meeting was held on the 16th inst. at Bromyard, when, in addition to a cattle show and ploughing matches, a Poultry Exhibition was for the first time added; and, considering the late period at which the Committee decided upon it, was a most successful one. We are pleased to notice that agricultural societies in general, not following the example of the "Royal," are adding poultry to their ordinary show of cattle, &c. We congratulate the Bromyard Poultry Show Committee upon the success already achieved, and recommend them on the next occasion to give early and extensive publicity to their prize list, several exhibitors in the neighbourhood having informed us that they should have sent their birds had they been aware of the Show taking place.

The Judges were G. Finch, Esq., and Mr. G. Griffiths, of Worcester.

GAME.—First, H. Horton, Worcester. Second, W. Lort, the Heath, near Tenbury. Commended, Capt. Sutherland, Gaines, near Worcester.

DORKINGS.—First and Second, G. C. Peters, Birmingham.

SPANISH.—First, J. Martin, Mildenhall Mill, Claines. Second, A. H. Philpott, Bromyard.

COCHIN-CHINA.—First and Second, G. C. Peters.

HAMBURGS (Gold or Silver-spangled).—First, J. Holland, Sansome Walk, Worcester. Second, J. E. Price, Hereford.

HAMBURGS (Gold or Silver-pencilled).—First, J. Holland (Silver). Second, J. Martin (Gold). Highly Commended, J. Martin. (A good class.)

BANTAMS.—First, J. Martin, Claines (Game). Second, J. Mapplebeck, Moseley Road, Birmingham (Game). Highly Commended, W. W. Griffiths, Worcester (Game). Commended, G. C. Peters (Gold-laced). (A class of great merit.)

ANY DISTINCT VARIETY.—First, A. H. Philpott, Bromyard (Brahma Pootras). Second, Mrs. Blay (Andalusians). First and Second, J. B. Weeks, Bromyard (Golden-pencilled and Silver-pencilled Hamburgs). First, J. B. Weeks (Game). Second, — Cottrell, Bromyard (Game). Highly Commended, W. Lort (Malays).

TURKEYS.—First, Mrs. Rix, Warren. Second, — Baggott, Bromyard.

GEES.—First, G. Bedford. Second, — Cave, Rowden, Bromyard. Commended, Miss Derry, Oak Cottage.

DUCKS.—First, — Cave, Rowden. Second, G. Bedford (Aylesbury). Commended, B. Holloway, Hopton (Rouen).

BEE-KEEPING IN DEVON.—No. XV.

PRECEPT AND PRACTICE—A MISTAKE (?)—MANUFACTURING A NEW STOCK—UNNEIGHBOURLY NEIGHBOURS—A "SPITEFUL" HIVE—PREPARATIONS FOR ROYALTY—TOO MANY BY HALF—AMICABLE UNIONS—BRIEF REIGNS AND ROYAL MARTYRS.

WHEN a man is in a downright passion, perhaps the wisest course he can adopt is to submit his grievance to some impartial friend; better still if that friend resides at a distance, so as to necessitate his stating his case in writing and waiting a reply by return of post. Having, therefore, blown off the steam of my indignation by inditing a long and rather strongly worded epistle to my friend Mr. Taylor, it will not appear surprising that, by the time I received that gentleman's reply, I was disposed to coincide with his suggestion that the queen in No. I. might have become dark with age,* and to imagine that the common queen might possibly have been transmitted by mistake. Had I written to M. Hermann immediately upon making the discovery related in my last, I should doubtless have caused him numerous references to his English and German Dictionary, which would probably have resulted in bringing him acquainted with the Teutonic equivalents for some of the most vigorous of our Anglo-saxon expletives. As it was, I sent him a temperate epistle informing him of his mistake (?) in sending me a common queen; hinting, also, the doubts I entertained as to the purity of the dark-coloured one; and requesting that another "double cassette," containing two more Ligurian queens, might be forwarded without delay. Having found some difficulty in dividing the former one, I asked him to put a double partition in the "cassette," thus—so that I might be able to cut it in two without releasing the bees.

Queen and
1000 bees.

Queen and
1000 bees.

It may not be amiss to remind my readers that my apiary consisted of five stocks, of which three were in eight-bar and two in seven-bar boxes. In addition to these I had what remained of the artificial swarm in my unicomb hive; which, however, had been much weakened by being deprived of its queen, and a great portion of comb transferred to the artificial stock in No. V. Two of my eight-bar hives were already furnished with Ligurian queens; and as I had written for two more, it became necessary to establish a fourth stock in a hive of the same dimensions, if the advantages arising from uniformity in size were to be preserved. Immediately after despatching my letter to Switzerland, I transferred what remained of bees and comb from the unicomb hive to an ordinary box, and set about driving all the condemned bees I could procure, with the view of forming a strong stock.

The first I was able to meet with was a populous colony, about three miles off, which was successfully driven and brought home on the 22nd of September. Fearing to disturb the new stock (which I denominated No. VI.) so soon after its transfer from the unicomb hive, I placed these destitute bees by its side, and fed them daily till the evening of the 26th, when the union was effected. The result was by far the most fatal fight I have ever experienced. Half a pound of dead bees remained on the cloth, and perhaps nearly as many more might have been scattered about the garden—no small loss out of 2½ lbs. of bees! The most probable explanation of this unusually obstinate contest appears to be, that during the few days the two hives had stood side by side, many mistakes had been made by bees attempting to enter the wrong hive, and from these partial contests each colony had learnt at once to recognise as enemies all belonging to the neighbouring stock. When, therefore, they were suddenly mingled together, there were probably a far greater amount of individual recognition and consequent fighting than take place when the bees are entire strangers to each other. This raises a doubt how far it may be advisable to follow the recommendation of some authors to unite in autumn such stocks as have been in close proximity during the working season.

On the 24th of September I operated on an old hive about four miles distant, which had swarmed once this year. The moment I inverted it I was attacked most furiously; but having secured the bees with the usual cloth and empty hive, I conveyed them some little distance at a rapid pace, and thus speedily got

* The offspring of this dark queen having turned out as true Ligurians as the others, I am now satisfied that the variation in colour is to be attributed either to age or accident.

rid of my assailants. Ten minutes rapping dislodged them from their habitation; but the moment the two hives were separated a fresh body of combatants renewed the assault with redoubled vigour. As these bees were to be united to No. I. containing the dark-coloured Ligurian queen, it was absolutely necessary to deprive them of their own sovereign. I, therefore, knocked out the remaining cluster on a cloth, and forthwith arose a cloud of armed adversaries, which searched and probed every crevice in my armour with their insidious weapons. Unfortunately, I have never been able to procure a pair of woollen gloves sufficiently thick to be entirely sting-proof, and ere long the back of each hand was severely punished. Still I persevered, caught the queen, and conveyed the hive containing the bees to their original stand. As soon as pretty nearly all were collected within, I tied it up; but could not do this so quickly as to prevent a rush to the entrance and a renewal of the attack, in which every straggler appeared to join. In fact, they fought to the last, stung three persons who happened to show in the garden, although at some distance from them, and fully sustained the character, which, it seems, they had previously earned, of being the most "spiteful" hive in the apiary. Singularly enough, these bees united very peaceably with those already in possession of No. I.; although, when knocked out of the hive in which they had been temporarily lodged, some of them actually took wing in the dark, and inflicted two or three additional stings as a wind-up.

Another stock having been driven and added to my newly-formed colony, No. VI., a liberal supply of food was administered, and comb-building proceeded with great rapidity. All was, therefore, in readiness for the expected royal visitors by the 4th of October, when I received the amusing letter which appeared in *THE COTTAGE GARDENER* of the 11th ultimo. It heralded the approach of *six* parcels of bees instead of the *two* I had ordered. Here, then, was another annoyance. I was only prepared to receive the two which I expected, and was compelled to apply to my apiarian friends to relieve me of the others. I have much pleasure in thanking them for, and in recording, the kindness I experienced. Every one was willing to assist me, and I should have had no difficulty in disposing of the whole. Unfortunately, however, they did not reach me till the 12th of October, when only four survived. Of these, two were despatched to Mr. Tegetmeier, at Muswell Hill, where they were placed at the head of stocks of English bees, and are, I believe, doing well.

It will be remembered that all my experiments in introducing foreign queens into English stocks, although successful in their main object, had been attended by the indiscriminate slaughter of nearly all the foreign workers that had accompanied their exiled sovereigns. Being very desirous of avoiding this painful sacrifice, I again varied my proceedings. Instead of expelling the rightful inhabitants, and introducing the foreigners into a deserted hive, I commenced by shifting the combs, bees, and all into another box, carefully examining every comb until the queen was discovered and secured. Having placed her with a few bees and a piece of barley sugar under a wine-glass, as a precaution in case of failure, a compartment of the "cassette" was speedily sawn off between the double partition; and a piece of perforated zinc having been substituted for the lid, it was carefully inverted over a hole in the top of the queenless live. Both stocks, having been subjected to this process, were allowed to remain on their pedestals till early the next morning; which, happening to be frosty, they were removed into a warm room, where they remained about three hours. At the end of that time the Ligurian queens and their attendants were introduced to their future companions by withdrawing the perforated zinc, and the two hives having been restored to their original positions in the open air, were soon actively at work without showing the slightest disposition to quarrel with their guests.

Although only two days had elapsed since these unions had been so peaceably effected, circumstances prevented my deferring my examination beyond the 14th of October, when I carefully inspected every comb. In No. III. were an immense number of young bees, and a large quantity of sealed brood, which proved the old ragged-winged Swiss queen to have been amazingly fertile during her thirty-two days' reign. Her successor was evidently a fine Ligurian, and "yellow" beyond all question.

No. VI. contained a multitude of eggs and brood in its early stages, showing that its unhappy sovereign had been quite as prolific during her brief reign as her Swiss contemporary. The discovery of a large "yellow" queen in this hive sealed the fate of both the deposed monarchs, whose lives were forthwith sacrificed by—A DEVONSHIRE BEE-KEEPER.

EXHIBITION OF CANARIES,

AND BRITISH AND FOREIGN BIRDS AT THE CRYSTAL PALACE.

THIS Show, which took place on the 19th, 21st, 22nd, and 23rd inst., was, we are pleased to say, a great improvement on that of last year.

The first class for *Jonque Norwich Canaries* mustered twenty-five entries. First Prize (No. 15), Mr. F. Willis. Second (No. 1), Mr. T. Banfather. Very Highly Commended, No. 16. Highly Commended, Nos. 6 and 7. Commended, Nos. 10, 11, 13, and 17.

Class II. *Mealy Norwich Birds*.—First Prize (No. 26), Mr. W. Aldis. Second Prize (No. 29), Mr. E. Hawkins. Very Highly Commended, Nos. 30 and 31. Highly Commended, No. 27. Commended, Nos. 32 and 36. These classes were designated very superior, and they were, indeed, excellent—far superior to last year, the birds being all very good and characteristic of the breed. Mr. Mackley's birds were shown in cages, which set the birds off to great advantage.

We are sorry we cannot speak in the same praise of the *Belgian Canaries*, or, as they are here designated, *Belgiums*. Through the whole six classes they were, in general, very inferior, and it must have been very difficult for the Judges to select birds that had any pretence to fancy properties. Belgian Canaries are divided by fanciers into two distinct fancies, the Erect and the Hooped or Bowed birds. But few of these Belgian Canaries could be considered types of either variety, they being of an intermediate form. Many, indeed, were but half bred. The Erect birds being very small, and the Hooped ones not sufficiently bowed. No. 37, Mr. Cole's, Highly Commended bird, was pretty but small. No. 39, Mr. W. Jamson's, was, perhaps, the most hooped. No. 54, Mr. W. Young's was the most characteristic of the Belgian fancy; but it was in bad feather, and much inconvenienced by its long nails.

Buff Belgians were a slight improvement on the Yellows. No. 59, Mr. Ilton's first-prize bird was rather small. No. 60, the second-prize bird was a very rough one.

Variegated Belgians would have done well in one class. No. 89, Mr. Judd's bird, was as good as any; very long and of good form. No. 80, Mr. O. Nicholson's first-prize bird was good, but too round-shouldered for an Erect bird, and not bowed enough for the Hooped fancy. No. 88, Mr. Hawkins's first-prize bird, was, perhaps, the most erect, but it was small and hollow between the shoulders.

Classes IX. and X., for *Crested Canaries*, were filled with very excellent and regular birds of strongly marked Belgian properties, and having beautiful even crests, the feathers of which fell evenly over the eyes and beak. They seemed a new variety, very different from the old crested birds (a few of which were to be seen in the variety class), and they were generally admired, though we heard many ladies express their dislike to the bunched-backed Belgians, which some of the fancy call fine chiseled shoulders.

The *Lizards*, in Classes XI. and XII., were regular in cap and rich in colour, but almost wholly without spangles. Nos. 104 and 106 were very light, almost blue. Nos. 124 and 125, First and Second Prize Golden Lizards, were very rich in colour. No. 128, Mr. Judd's bird, though rather broken in cap, was the only one that showed the requisite spangles on wings and tail, and was consequently sold.

Mealy London Fancy were very pretty birds, but their beauty was much marred by many of them having had their quill feathers knocked out, and which had come light.

The *Jonque London Fancy* were in much better feather, and very handsome; but we looked in vain for the spangled shoulders, black legs, and dark down which these fanciers set forth in their rules as additional beauties. Mr. Hook's first-prize birds had certainly some approach to spangles on the shoulders, but most of the birds seemed to us to be bred too low in colour, not having black enough. Mr. Hook was First in both class, Mr. Waller Second and Third, and Mr. Paice very Highly Commended.

Classes XV. and XVI. contained the *Mealy and Jonque Goldfinch Mules*, of which there were twenty of the former and eight of the latter. Many of them were very handsome and regularly marked birds. No. 159, Mr. Lingard's bird, had First Prize. No. 162, Mr. Stevenson's, Second, for Mealies. Mr. W. Arthur's birds (No. 147), were very Highly Commended. No. 146, Highly Commended. Mr. H. Marshall's (No. 160), Commended. Mr. H. Wardle's bird (No. 163), was well worthy of notice, being quite clear white, with the yellow mark on the wings, and we could

not perceive any coloured feathers whatever. The same gentleman also showed (No. 172), a Jonque Goldfinch Mule, of a beautiful yellow, the only other colour being two dark tail feathers. Mr. Arthur's bird (No. 166), had First Prize for Jonque Pied Mules. Mr. Marshall's (No. 170), Second Prize. Mr. W. Phillips (No. 171), Highly Commended; and Mr. Arthur's second bird (No. 167), Commended. These were very superior classes.

Class XVII., for *Mealy Linnet Mules*, there were but two birds shown, they were but irregular Pieds, not so handsome as the Goldfinch Mules, but, perhaps, more valuable on account of their rarity. No. 176, Mr. R. Wilde's birds, received Second Prize. Mr. J. Lingard's bird (No. 174), was not noticed, which, considering the scarcity of the sort, we think hardly fair. Mr. Pennington's bird did not make its appearance; and of *Jonque Linnet Mules* there was no entry.

Class XVIII. For any other varieties of *Canaries* or their *Mules*, contained ten entries of Pied Norwich Canaries. They were characteristic birds, the Jonque Pieds being very rich in colour; but from their irregularity of marking they did not, in our estimation, deserve to take precedence of the handsome and much more valuable Cinnamon or Dove-colour. First and Second Prizes were, however, given to Yellow-pied Norwich birds, while Third Prize only was given to (No. 189), Mr. A. Dart's Cinnamon cock. Mr. C. Cole's (No. 187), and Mr. Dart's (No. 190), were Commended; and the latter also showed (No. 191), a pretty Cinnamon-pied. We would wish to see these rather rare colours, and formerly much-prized birds, receive more encouragement. Among other odds and ends Mr. Judd showed two of the old-crested Canaries (No. 198 and 199). Most of those shown as German Canaries were a mere burlesque of that delicate variety, and we were disappointed in not seeing one good Green Canary.

Mr. W. R. Valler exhibited a very handsome and excellently contrived double breeding-cage.

Of the other mules bred from Canaries only three birds were there, and only one of them worth notice—No. 225, exhibited by Mr. G. Williams, a Twite and Canary Mule. The other two were hen Siskin, or Aberdevine, Mules; and we looked in vain for Mr. Beach's Mule, parentage unknown.

BRITISH BIRDS.

Class XX. *Bullfinches*.—Five were exhibited, the prize being awarded to No. 229, belonging to Mr. E. W. Major; the same gentleman being successful in Chaffinches, Goldfinches, Hawfinches, and Linnets. Among the *Goldfinches* we noticed the two varieties of the lighter birds with light legs, and the darker birds with dark legs. In the Hawfinches we were much struck with the size and dark colour of the two birds exhibited, though we thought that which was Highly Commended was a finer bird than the one which received the prize. On crossing over London Bridge the next day the mystery was solved to our satisfaction; as we there saw a number of Hawfinches exposed for sale in the little wooden German cages, 2s. 6d. being the price asked. These birds were all larger and darker in plumage than our English Hawfinches.

Class XXIV. contained three *Crossbills*. No. 249, the prize bird of the Hon. A. Willoughby, and the Highly Commended bird (No. 250), of Mr. E. Hawkins, were a beautiful dark red with dull black wings and tails, the third being the prevailing grey colour. We suspect these were also German importations: if not, we should like to hear where they were caught, as they are somewhat rare visitants to this country. Mr. H. Hanly (No. 257), had the prize for *Skylarks*: three competitors. Mr. Hawkins for *Woodlarks*, the only one exhibited. *Robins'* prize to Mr. E. Hawkins. *Blackbirds'* to Mr. H. Bayman. *Song-thrushes'* to Mr. A. J. Moore.

Class XXII. *Starlings*.—There were five entries; Mr. C. Hutt's bird (No. 272) having the prize. They seemed very tame, and Nos. 270 and 273 favoured us by whistling snatches of their favourite airs. Mr. H. Bayman had the prize for *Jays*—the only one exhibited.

Class XXXIV. For any other variety of *British Bird* contained (first prize) a yellow-breasted Bullfinch, a very curious variety, exhibited by the Hon. A. Willoughby, and it was quite a novelty; but that exhibited next to it as a Black Bullfinch was only a common hen. Mr. H. Hanly showed a Grey Linnet, pied with white, which was Highly Commended. Mr. W. Pope exhibited two young Herons. Mr. C. Hutt a Mountain Sparrow and a Reed Sparrow, or black-headed Bunting.

Class XXXVII. *Hybrids, or Mule Birds, of any variety except*

Canaries.—Mr. J. Beach showed four and Mr. H. Hanly one hybrid between a cock Goldfinch and a hen Bullfinch. Mr. H. Hanly and Mr. A. Staley each exhibited a hybrid between Goldfinch and Greenfinch, which were very curious, and we think it an omission that some commendation was not bestowed on them.

The *Groups of British Birds* were ill-assorted, and the birds too crowded. Mr. W. Bicknell received the prize for the best group.

BIRDS OF PASSAGE AND MIGRATORY BIRDS.

Class XXXIX. *Blackcaps*.—Two were exhibited. One without a tail, which spoiled its chance of a prize; while the other had such a dingy cap it looked rather feminine. Of Nightingales we only noticed one. Mr. C. Miles showed a Redstart in excellent condition. Mr. H. Bayman's Wrynecked Cuckoo's mate, or Snake Bird, seemed in good health. Siskins, or Aberdevines, were there; both cocks with their black heads, and hens with grey caps. One Redpoll with a nice red breast, and several Bramblefinches in good plumage. Several Collared Turtle Doves were exhibited, but they were all entered by the wrong name. (Ring Doves are large Wood Pigeons with a white ring about the neck.)

FOREIGN BIRDS.

Of Grey Parrots there were ten entries: Mr. J. Seeley obtained the prize. Of Green Parrots nine entries: Mr. W. Ryder gained the reward of merit. Other Parrots, Mr. W. W. Westbrook, a Juron from Swan River. Australian Grass Paraquets, four entries: Miss F. Croad received the prize. Ringnecked or Bengal Paraquets, five entries: Mr. R. M. Clarke being the winner.

Any other variety of *Small Parrots*.—Rosebill Paraquets, Bloodwings, Green-leeks, Cockateals, Rose-breasted Cockatoos, and Macaws, only one entry each. Red-rumped Paraquets, Cockatoos, &c., were few; and owing to some being in cages and some on stands they were much scattered about.

Many of the smaller foreign birds were very beautiful, among which we noticed the delicate little Wax Bills and the handsome Bishop Birds. Captain Richard's three Whidah Birds were in beautiful plumage; and Mr. Hawkins's group of foreign birds were very interesting.

In the *Extra Class for Foreign Birds* we were much pleased with Master E. Bartlett's Californian Quails. Mr. J. Beach's cock bird from India, name unknown, appeared to us to be the Serim Finch (*Loxia Serinus*), common in the south of Europe, and sometimes known in England as the St. Helena Canary.

Two individuals were also there which we must not omit—namely, the Great Brown Kingfisher, or Laughing Jackass, from Australia, which ever and anon entertained the audience with their hoarse laughing; commencing with a low croaking noise, and increasing in volume and execution.

We were much delighted with the Show: it was a decided improvement on last year, and we hope to see still further advance in years to come. We are certainly of the opinion that all the variegated and marked Belgian Canaries, would be amply accommodated in one class; but we think the Jonque and Mealy Belgians ought to have separate classes, for Erect and Bowed birds, as the two extremes cannot well show together.

Having concluded our notes, we mounted to one of the upper galleries to obtain a bird's-eye view of the whole, which was well worth the trouble. The ornamental water and the feathery foliage of the large Ferns, the sparkling of the fountains and deep green of the tropical plants, the gay crowd, the merry children, the distant pealing of the organ, mingling with the song of the birds, added to the enchantment of the scene, which we left with regret, hoping another year to enjoy a similar sight.

OUR LETTER BOX.

LIVERPOOL POULTRY SHOW (*J. B.*).—We do not know when it is to be exactly, but it will be advertised in due time, we have no doubt.

EXHIBITING PULLETS AS HENS (*R. Craig*).—You cannot do this honourably, as there is a class for "cockerels and pullets." By general acceptance these are considered to be birds hatched within the current year. Laying is not considered a termination of pullethood.

VARIOUS (*E. N.*).—Those who send us a cloud of questions at once can have but brief answers. Four fowls would be enough in your enclosure. Silver-pencilled Polands are as economical as any. Wire fencing for them six feet high. Barleymeal and boiled potatoes once a-day, and oats once a-day. Twelve ounces of such food per head would be enough, besides green food. For your cow mangold wurtzel and grains, with a little hay in winter. Vetches, clover, and grains, in summer; quantity depends on breed, &c. A Morello cherry will do on a north wall. Rabbits should have bran besides green food; sawdust is a good litter for them.

WEEKLY CALENDAR.

Day of M th	Day of Week.	DECEMBER 6—12, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
6	Tu	Tulips.	30.235—29.960	39—25	N.W.	.01	52 af 7	50 af 3	30 m 3	12	8 53	340
7	W	Hyacinths.	30.161—30.105	37—34	S.E.	—	53 7	50 3	49 4	13	8 27	341
8	Th	Camellias.	30.205—30.187	38—35	N.E.	.01	55 7	49 3	10 6	14	8 1	342
9	F	Chrysanthemums.	30.267—30.238	38—34	E.	.01	56 7	49 3	30 7	15	7 35	343
10	S	Correa speciosa.	30.266—30.239	35—33	E.	—	57 7	49 3	rises	☺	7 8	344
11	SUN	3 SUNDAY IN ADVENT.	30.260—30.240	35—34	E.	—	58 7	49 3	59 a 4	17	6 40	345
12	M	Coronilla glauca.	30.115—29.889	38—30	S.	.10	59 7	49 3	24 6	18	6 12	346

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 46.5° and 34.6°, respectively. The greatest heat, 60°, occurred on the 7th, in 1856; and the lowest cold, 14°, on the 6th, in 1844. During the period 124 days were fine, and on 100 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

EVERY dead, decaying, and mouldy leaf, and flowerstalk to be removed as soon as it is seen. Mildew to be banished by an application of flowers of sulphur, and afterwards to be prevented from making its appearance by a free ventilation on clear, mild mornings, using a little fire heat at the same time. Great caution is now necessary in giving water to the plants, more especially to such as have not well matured their growth, and are in a rather soft state. It is, also, advisable to look over them every morning, that the flagging of a leaf may be noticed, and the necessary supply of water be given. All pots to be turned around occasionally to keep the plants uniform.

CALCEOLARIAS.—Remove all decayed leaves, and be careful to give no more water than is really required. Keep down green fly.

CINERARIAS.—No more fire heat to be given than is necessary to keep out frost. The plants intended for large specimens to receive their final shift; air to be given on all occasions in favourable weather. Every one that is getting pot-bound to be shifted. Green fly to be kept down by fumigating. The most forward to have the lightest place in the house, close to the glass, with sufficient space for the air to circulate freely around the foliage of each.

PELARGONIUMS.—To be kept rather cool and dry, fire heat to be avoided, except when necessary to prevent the temperature falling below 40°, or to dispel damp. Every plant intended for early bloom to be arranged in the best form. The system of arranging a piece of twisted bass under the rim of the pot, to which loops are fastened to secure the shoots and the better formation of the plant, obviates the too-extensive use of sticks, a superfluity of which is at all times objectionable.

STOVE AND ORCHID-HOUSE.

Continue to act as advised lately, care and caution in the application of water are more especially required, as there is not a single feature in the cultivation of plants during the winter, in which the amateur is more likely to err, and by reason of which a greater amount of injury is sustained, than in the application of water either in its fluid or vaporous state. If applied to the soil in superabundance, the roots being inactive are certain to sustain some degree of injury; and if it is applied in excess to the atmosphere in the form of vapour, the exhalations from the leaves of the plants will be checked in consequence of the density of the medium that surrounds them when they will be sure to suffer.

FORCING-HOUSES.

CUCUMBERS.—Sow some good variety for planting out next month. A one-light frame on a well-worked bed of dung and leaves is most suitable for the purpose, as producing an atmosphere moist and congenial for their healthy vegetation and growth.

PEACHES.—Syringe the trees that are just started and swelling the buds, and keep every plant clean and neat.

PINES.—When the application of fire heat is necessary during severe weather, it is advisable to pay particular attention to those that have done blooming and swelling off in various stages, that they may not receive a check from being over-dry at the roots.

VINES.—Leaves, or dung, or both mixed together, when used to produce fermentation, and a sweet vaporous atmosphere to “break” the early Vines, should be turned and watered at least once a-week. Keep the wood generally moist, and proceed in forcing with caution as before advised. As the most essential point in early forcing is to secure a healthy and vigorous root action, it is advisable, if the Vines are planted inside, to excite the roots by an occasional application of water at a temperature from 85° to 90°. If the Vines are planted outside, a steady heat of about 60° should be maintained by the fermenting matter placed on the border to be frequently turned over, and protected with dry litter from the frost or other unfavourable weather. Houses intended to commence forcing the early part of next month, to have some fermenting materials placed on the borders to excite the roots a little before the Vines are started, which will be of some assistance to make the buds push strongly and without much loss of time. To induce the buds to break regularly throughout the whole length of the Vine, it is frequently necessary to bend the rod so as to incline the most forward buds to the lowest level, and to elevate the most backward.

WILLIAM KEANE.

LAWS OF CROSS-BREEDING — DOUBLE PRIMROSE AND POLYANTHUS.

THEY were much more numerous in kinds, or varieties, in Gilbert's father-in-law's time, two hundred years back, than they are at the present day; and much finer kinds were then common than are to be met with in all our floristries of the present age. How is that to be accounted for? That I cannot tell; but of the fact itself I am as certain from Gilbert's “Vade Mecum” as I am of my own existence.

One cause, and the greatest cause, may be the fact that the cultivated varieties of Primrose and Polyanthus do not yield to the natural laws of cross-breeding, the pollen having little or no influence in the production of new forms or colours; and all that has been said of the influence of currents of air, and the industry of insects and busy bees, in respect to this family, is sheer folly in the face of well-conducted experiments. The law of natural liberty for allowing to increase and multiply by variations is quite contrary to the law of cross-breeding; and that may have been wisely ordained, seeing that the laws of crossing in the animal and vegetable kingdoms are as opposite as the poles, and as far asunder.

Breeding in-and-in is the only and certain means of improving the individuality of florist's races of flowers. New pollen from a different race or species may originate a new strain; but it never fails to contravene the progress

of improvement within the circle, as in breeding in-and-in, until such time as the new strain is itself brought within the same unvarying round.

The Fancies and the French-spotted Pelargoniums are two recent instances of the truth of this axiom. Both were new strains from a different pollen parent; and if all other Pelargoniums were sent out of the world as soon as one or both of these strains were introduced, people would have to wait one generation of florists before these two races, or either of them, would be as far up to the mark as the old Pelargoniums were when these two races made their appearance. But the old and improved race of the Pelargoniums, by breeding in-and-in, has not only not disappeared, but is now fast drawing the new rivals into the very same circle as itself. If *Tom Thumb* or a new kind from any section of the family from the Cape of Good Hope could be got to cross now with the Pelargonium as it is, the offspring would not be an improvement in the eyes of a florist—only a stopping-stage, like those made by the Fancies and Spotted breed. But to show how taste differs from a fixed law, we have had the great bulk of our people in raptures at the “improved looks” of the French and Fancy breeds, while the florist looked upon them as stopping-points in the progress of his care and calling.

The Dahlia—that is, the improved Dahlia of the present day, is the best example in our book of the force of the liberty-law to sport and vary in opposition to the law of crossing to get into more variation. The pollen has no more influence on Dahlias than on Primroses. Take any one, and only one of our cultivated Dahlias or Primroses and Polyanthus to a new country—or island where none of the kinds were ever seen, breed each kind on its own bottom; and sooner than any one unacquainted with the fact could believe, each kind would be out into as many kinds and varieties as almost the old country could produce. When the law of crossing came to be first mooted and understood in this country may have been the time when so many single and double Polyanthus went out of cultivation. Trusting to the superiority of cross-breeding, a superior race was expected from it in all instances; and some of the races that were had from the older law of liberty to sport were let out of cultivation, in the anticipation-period of better things. At least, that is as good a way of accounting for the loss of older kinds as any other, and the best way of doing so under the object I have in view just now, which is to point out the impracticability of improving by cross-breeding any one race of flowers that has hitherto been operated upon, if the parent plants are such as sport from seeds of their own free will, as it were.

There is another seeming law against the improvement of races by new blood, or pollen; and that law seems to begin as soon as a wild plant is subdued by improved cultivation, so as to be able to sport by seeds into some improved forms on its wild nature. All the host of Cowslips, Oxlips, Polyanthus, and Primroses, came originally from one pod of seeds of one of themselves; but if you are of a different opinion, have your own way, it makes no difference for my present object. Say there was one kind of Primrose, one kind of Cowslip, and one kind of Polyanthus to begin with, my argument is this, that any of the four would cross with one of the rest at the beginning; but when the race became fixed and bred in its own strain only for so often, or so many years, the last offspring will not cross with any of the other three kinds, supposing them to be still in their original wildings, and much more difficult would it be to cross improved seedlings from any of them.

It has often been pointed out to me by ladies, and by some gentlemen who go almost as far as most ladies in their ideas of high-art improvement, that it would be a very desirable result to get our buds of Polyanthus and Primrose to cross with the Chinese Primula; and so it would, most undoubtedly. When I first saw the original

single red China Primrose in bloom was in 1824; I was then very deep, but, in truth very shallow, in the mysteries of cross-breeding. I was full of it, however, up to the armpits—at any rate, the Chinese Primula was then quite new in Scotland, and only a few years in London itself; and it took just twenty years' cultivation in a new country, new soil, climate, and mode of cultivation, to alter that pale pink Primrose to a double flower. If we had the original of the Chinese plant, and the type plant from which our own Primroses and Polyanthus first sprang, it is hard to say that they would not cross and provide a new strain for us; but assuredly the present races from these originals will not interbreed by the help of our present knowledge of the laws of cross-breeding.

The first double Chinese Primrose was in the market about the time Queen Victoria succeeded to the British crown. The double red was then selling at one guinea each, and the double white at just three times that amount. I myself paid three guineas for it to Mr. John Henderson, of the Pine-Apple Place Nursery, in 1836. For some years it kept at the same distance in price from the pink double kind—and I was more lucky with it than others of the London growers, for I had it to spare, both to Mr. Henderson, and to Mr. Low, of Clapton, in exchange for other novelties: still the white one was found to be the more difficult to keep and to propagate. Now, however, and for some years past, the tables have turned over them, and the white is the more common of the two; and the French white, or fringed kind, which first appeared in the Kingston Nursery here, is the best of the race of double ones. About the time of the first China war and Sir Henry Pottinger, these double Chinese Primroses got sadly behind about London. They were scarce, dear, and badly grown: whether that was owing to our foreign policy or not I cannot say, but the fact is patent to this day. About that time, or shortly afterwards, Mr. Latter, of Ipswich, and the gardener of General Anderson, at Bath, succeeded in growing them so much superior to the London run, that they became the talk of the gardening world. Sir W. Middleton used then to reside in Bath a few of the winter and early spring months, and often wrote to me to give the full size and extent of General Anderson's Primulas. On the other hand, Mr. Latter was in the habit of sending me yearly batches of cut flowers of his improved seedlings, and of his superior way of growing the plants; and round Ipswich they stood in the scale as in the next degree to Cucumbers, to test what was in the spirit of gardening to make a man celebrated in their successful cultivation. When I came back to London in 1857, and found the growth of these Primulas not a whit more forward than it was at the taking possession of the island of Chusan by the English, I began to turn over a new leaf, railed at them for their want of pluck and what not—so much so as to arouse the British lion within them, and to haunt them like the nightmare in their dreams. They could not stand it, or resist another effort which soon eclipsed both Ipswich and Bath, with the rest of these parts of the world besides. The Londoners are now the best growers of the Chinese Primulas in the world; and Kingston stands first in the order of merit of all the London districts in this revival. It is, therefore, no presumption on the part of the historian, but an act of real charity for me to detail the Kingston practice for the use and benefit of the people of Bath and Ipswich generally, and to Mr. Wild, of the Primulaceæ, Ipswich, in particular, in return for their successful endeavours to keep alive the notion of growing them well, when the knowledge of doing so was fast failing about London.

Besides, the best letter that ever passed through the office of THE COTTAGE GARDENER was just on this very subject last week. But here it is in full, and judge between us. “Something about double Chinese Primroses, when convenient—*A Country Subscriber*,” and not another scratch.

The surest way, then, to get the longest yarn at our shop is to send in the shortest notice anent it. No matter how much may be our own ability at spinning, the Editors have a dread and horror of reading long letters by the score and furlong every morning of their lives, unless the letters happen to be about some very useful process in our line of calling; and then the longer and more broad they are the better for us all. The only fault in the above letter is "A Country Subscriber." No doubt he means the dear old country; but we would not be left to infer the country or kingdom from which letters to us are despatched, for we have them from all countries. The only excuse is, that it is from a gentleman—ladies never make such lapses.

But about the "something" relating to double China Primroses. The best way is to begin at the beginning, as I have just done and finished. The next best act for an amateur is to start with a healthy plant or plants; for there is nothing in the whole circle of gardening so discouraging, and so sure to fail, as to begin with a poor sickly stock to grow on or to propagate from. There are a thousand little ways in which a good practical gardener can manage to make both ends meet in success which an amateur can never, or very seldom, attain to; but let him start on fair grounds, and it is often surprising to the best of us how soon and how completely he can fall into our ways. Some few healthy-looking plants are just now showing their colours, and should remain in the same pots till the flowering is all over. Nothing is so bad for them as to be a long way from the glass, or to be kept too long in the drawing-room. Either way is sure to draw up the plants unnaturally; and if they thus receive damage, cuttings from them will never make sound healthy plants. The plants should not suffer from want of water or of air, nor have too much of either all the time they are in bloom; but when they are in full growth, at the latter part of summer and in the autumn, they require an abundant supply of water, and as much air as Heaths: therefore cold frames are better for them than than the best greenhouse culture.

Young plants from cuttings late last spring should flower first in large 48-sized pots. The double ones, being all from cuttings, must not have such large pots the first year as single kinds from seeds. Indeed, the whole secret of success is to have them underpotted the first year—that is, the double ones. The single kinds will do as annuals in large or small pots. But it is a kind of unnatural forcing to put double kinds in larger pots than these 48's till after the first winter is over; and if the pots are very full of roots the plants will do all the better in a dry large house or in a sitting-room, standing in saucers with a little water under them—but mind to let the saucers get dry one day in every week, and two days in very dull or cold weather.

When the winter is over and the bloom is past, or whether so or not, about the middle of March, they ought to be repotted into No. 32-pots, placing them deeper in the pot than is done for Geraniums. If the weather is not warm at the time they should be encouraged, for a month or six weeks after potting, in a warmer place than a greenhouse—say a close pit or frame, with mats over the glass at night, and a little shading in the middle of hot sunny days. From May to August these double kinds will not grow so fast in proportion as other plants, and single kinds of themselves: therefore the middle of August is time enough to shift them into 24-pots. From August to November they make the best of their yearly growth. At this time, the end of their second year, some few of the strongest will need No. 16-pots; but, as in the first year, unless the roots are very much cramped by September, they are more safe in No. 24-pots, and to have a little extra water instead of larger pots. They will bloom strong this second winter; and the third winter they are at their full size; and at their best after a shift in March and another at the end of June, or between

that and August, according to their progress. When a dozen or more of them are under this treatment, some will require to be potted earlier, and some later; some into larger and some into smaller pots; but no directions can regulate this so well as the judgment of the grower.

When any of the plants increase to two, three, or more heads, the second or third year, all the heads are fit for cuttings; and if they or any one of them is cut off where they divide, it will make a new plant, and the bottom part will throw up more heads, or shoots, for other cuttings, as did my great "Good-gracious" Polyanthus. From March to the end of May is the best time to make such cuttings; and each cutting should have a very small pot to strike in, in heat under a close-fitting glass,—they root best that way,—and in half peat and half sand, with clean sand on the top. Generally they take six weeks to root—some more and some less, according to the hardness or ripeness of the bottom part of the cutting and the steadiness of the bottom heat, which should be about the same as for Cucumbers. As soon as they are well rooted shift them to pots one size larger, and one-third sand to two-thirds loam, and keep them close for the next two weeks. After that all heat and closeness may be dispensed with; but for the whole of the first summer they should not be exposed to too much sun. A cold frame in a north aspect is better for them than much shading in the full sun. At the next, or third shift, into No. 48-pots the compost should be equal parts of sand and very rotten cowdung in a dry state one-half, and the other half good holding loam, yellow or brown. Some growers make the compost stronger by more loam; and some much lighter, by using more old rotten refuse from linings or from the rubbish-heap; and some have always a little peat with the compost. All the plans are equally good in the hands of expert growers, but not so sure and steady as the loam alone with the sand and rotten dung, which is as near as possible to what is used in the Kingston Nursery, where they have been brought to the highest perfection; and where immense quantities are reared every year for the trade, after supplying their retail customers; and where a whole houseful of the largest specimens is kept on purpose for cut-flowers every winter. The huge plants in peck and half-bushel pots standing on other large pots turned upside down to get them near the glass. The heat of this house is from 40° to 50° all the winter, which causes an earlier growth in the spring, when the large plants are all reduced into cuttings, and the bottom parts are then forced to double and treble the number for propagation.

D. BEATON.

A TRUE AMATEUR AND HER GREENHOUSE.

"M. L. E." cannot forbear expressing her thanks to Mr. Fish for having taken so much trouble in answering all her queries respecting the heating, airing, and watering a small greenhouse. She perfectly understands his very clear directions, and will apply to them in her difficulties. As he does not seem to think it a trouble to hear about this said greenhouse, as he says he should have liked to know the mode of heating it, she must inform him it is by hot-water pipes. She has no gardener except an old man, who washes all her pots and mixes the moulds as the different sorts are read over to him. She pots all herself; and her maid lights her fire under the boiler, which is in a little potting-house attached to the greenhouse by means of a sliding door; and the greenhouse communicates with her dining-room. The *Acacia armata* is coming into flower; so are her Camellias. Her *Stephanotis* grows fast, looks healthy, but has never yet flowered; and whether it will ever become acclimatised to the heat of the house time must show. Gloxinias have made buds; but "M. L. E." does not think they will ever come to perfection, not being of sufficiently high temperature: it is generally at its lowest range—42° or 45°, and the last few warm days at 50°. The plants are beautifully healthy; at present not a green fly, for it is generally fumigated every fortnight or three weeks. She has now in full bloom Scarlet Geraniums, *Bouvardia cerantha* and *B. longiflora* for the second time, Petunias, Chrysanthemums,

Lophospermums, and Chinese Primroses, and an immense lot of young cuttings over the pipes on flags. The Eucnida is beautiful also.

[Mr. Fish says:—"Such a letter as the above makes labour light, and ought to be printed in large type to attract and encourage amateurs, and be an example to young gardeners to think and reason as to the 'why' of their operations. If this is not more generally done, amateurs and window-gardeners will beat us on our own chosen ground." The fact that the house is heated by a boiler just makes the regulation by the damper more important, if the house is to be kept regular in temperature, and little economy of fuel. The temperature given shows the house is intended for growing the plants slowly and nicely in winter, and not merely keeping them. A little fire, therefore, unless in very warm nights in winter, will be generally acceptable, and will permit of giving a little air earlier. If the house is seldom below 45°, and frequently in warm nights as high as 50°, the *Stephanotis* will live; and when established along the roof, trained fully eighteen inches from it, will be likely to bloom in summer. We had a nice plant in a conservatory, kept at from 45° to 50°; but it died down bit by bit when the artificial heat was allowed to range from 37° to 45°. Were we within a mile "and a bittock," we should like to see this greenhouse so creditable to all parties concerned; but if "M. L. E." does not wish to be inundated with visitors she will act wisely in giving to the gardening world only her initials. We would sometimes mention encouraging instances like her own, but feel we have no right to thrust any one into publicity.]

CULTURE OF THE FIG TREE.

TIME is ever changing, and with its changes bringing about great revolutions in the gardening world. A modern writer, (Linden), speaking of the Fig, says that it is not sufficiently in demand to make houses specially for its culture worth erecting. We have lived to see that aristocratic tastes, at least, have undergone a great change, and that there are few of our grandees who do not think a well-ripened hothouse Fig one of the greatest luxuries in the way of fruit. Figs, as generally fruited out of doors, are seldom sufficiently ripened, and are not unfrequently of a mawkish flavour; but ripened in a house devoted to their culture they become a rich jelly of very exquisite flavour. The Fig from the open wall and that of the hothouse are two fruits not to be confounded.

My experience in forcing Figs enables me to say most positively that there is no kind of fruit more in demand in aristocratic life, and also that there is no fruit more deserving of a house for the purpose of growing it.

Some eight or ten years ago Sir Charles Wood paid a visit here; and in walking round the garden suggested the propriety of erecting a house over a magnificent Fig tree on the open wall. This was done forthwith; and I will now give the readers of this periodical a brief account of it, and its treatment and produce.

The length of the house is 46 feet, and the back wall is 14 feet high. The tree covers the whole of this space, and 10 feet additional at each end, being thus 66 feet in its whole length. The roots had, before it was enclosed, run riot into the border; and my first proceeding was to cut a trench about four feet and a half from the tree, and build a wall of brick and concrete to retain the roots. This done, and having given a slight pruning, principally removing some long naked branches, we commenced forcing it about the beginning of January. In doing so I introduced into the house a bed of leaves about four feet high, which gently stimulated the roots to action, keeping a temperature of 50° at night, with syringings night and morning. Thus circumstanced, the tree broke into leaf rapidly and put forth an abundance of Figs, being kept well supplied with tepid water.

As the Figs advanced the temperature was increased; and by the beginning of May I had a splendid crop of ripe fruit. The shoots which produced the early Figs were all stopped at the third or fourth joint, and by midsummer were each presenting clusters of secondary Figs, which gave us a most abundant autumnal supply. The Fig is very subject to red spider; but by three or four dressings of lime and sulphur on the flue this pest was kept down. I never prune much, believing that there is truth in the old adage that "a pruned Fig tree never bears."

If it were necessary to prove the advantages of glass houses for Figs the circumstance of perfecting two crops in one season does it at once. I remember when a young man Lord Plymouth gave

the late Mr. Lee ten guineas for the original plant of his *Perpetual*. We kept the plant in a small stove, and it was always bearing Figs. Many other kinds would be thus prolific if they could be treated to a suitable climate. Our summers are too short and uncertain to ripen the second crop of Figs without assistance; but with the aid of glass this is accomplished.

The Fig is a most delicate and tender fruit; and when it is fully ripe it is difficult to distinguish between that stage and the commencement of decay. In an hour or two a fine perfectly ripe Fig will sometimes become coated over with a blue mould—disfiguring the fruit, but only requiring to be peeled off to reveal the quintessence of this charming fruit. It is also very susceptible of injury from too much damp; and requires, therefore, much judgment in syringing, for which the mornings are most adapted, as it dries off gradually.

When we consider how superior are the Grapes produced in British houses, even to those which come from vinous latitudes, we need not wonder at what glass effects for the Fig; and if this account of the Nuneham Fig should incite others to cultivate this fruit my purpose will have been fully answered. Let us hope that the Fig may become more common amongst us, as it is certainly one of the most wholesome fruits we have.

HENRY BAILEY, *Nuneham*.

COLLECTION OF FUCHSIAS—LARGE ONIONS.

WILL you tell me if I could improve my collection of Fuchsias? The following is a list of what I already possess:—*Wonderful*, *Venus de Medici*, *Banks's Glory*, *Guiding Star*, *Souvenir de Chiswick*, *Little Bo Peep*, *British Sailor*, *Sir Colin Campbell*, *Lord Clyde*, *Rose of Castille*, *Surprise*, *Fairest of the Fair*, *Charlemagne*, *Omar Pacha*, *Queen of Hanover*. I want them for competition.

Please to tell me the largest Onion where size is wanted more than quality?—BOB.

[Your collection of Fuchsias is very good, but as you wish to improve it, discard the following:—*Wonderful*, *Glory*, *Surprise*, *Charlemagne*, and *Queen of Hanover*. Then purchase the following:—

Chancellor (Smith). Scarlet-crimson tube and sepals, violet-purple corolla.

Eclat (Smith). Tube and sepals scarlet, clear-white corolla, good habit, and an abundant bloomer.

La Crinoline (Banks). Crimson tube and sepals, with a large blue corolla.

Princess of Prussia. Scarlet tube and sepals, pure-white corolla.

Queen of the Sea (Banks). Rich scarlet reflexed petals, and deep violet corolla.

The best sort of Onion to grow large is a kind the seed of which is imported by Messrs. Sutton, from Madeira. We have grown them eighteen inches in girth. It is good as well as large.]

NEW AND RARE PLANTS.

MANY of the following plants have been slightly noticed already in THE COTTAGE GARDENER; but I think if they are collected together in one list they will be brought more prominently before our readers in consecutive order, and thus be impressed more distinctly upon the memory. They are all worthy of cultivation, and I can vouch that the description of each is correct.

STOVE PLANTS.

ADHATODA CYDONIÆFOLIA (*Cydonia-leaved Adhatoda*).—A handsome-foliaged stove plant, with white flowers tipped with purple. It flowers during September and October.

ALLAMANDA VIOLACEA (*Violet-coloured Allamanda*).—A splendid addition to a fine family of plants. The flowers are something like *Gloxinia speciosa*, and are produced very plentifully. It is a native of Ceylon. Mr. Gardner says it is "by far the most beautiful of the genus." This will be a favourite plant amongst cultivators, being well adapted for exhibiting among a large collection of stove and greenhouse plants.

ARDUINA GRANDIFLORA (*Large-flowered Arduina*).—A handsome evergreen shrub that will amply repay for cultivation, either for ornament, or for flowers, or fruit. It has white, sweet blossoms, larger than the Jasmine, and its fruit is of a rich crimson and well flavoured. It is a native of southern Africa, and was sent over by Mr. Plant.

BIGNONIA ROLLISONII (*Rollison's Bignonia*).—Flowers produced in clusters, and of a golden yellow colour tipped with white. It is a stove climber from Brazil, and is well adapted to cover a back wall or to be trained up a rafter.

CYANOPHYLLUM MAGNIFICUM (*Magnificent Cyanophyllum*).—A truly noble-foliaged plant, now well known. It is of the easiest culture, only requiring rich light soil and plenty of pot room. It has not flowered yet in this country. I have seen leaves two feet long and nine inches broad; they are produced in pairs, and are of a deep velvety green on the upper surface, and a rich purplish-crimson beneath. Each leaf has three prominent whitish nerves running the entire length. A more splendid-foliaged plant was never seen.

DIPTERACANTHUS AFFINE (*Related Dipteracanthus*).—A plant with leaves like a Laurel, and of a leathery texture, glossy and acuminate, and strongly nerved. The flowers are large, cup-shaped, and of a brilliant scarlet colour.

FAGRÆA MORINDIEFOLIA (*Morinda-leaved Fagræa*).—A fine large-leaved shrub from Java, with long terminal spikes of trumpet-shaped flowers, having a soft rose-coloured tube and white limb. A truly noble addition to our stove shrubs.

FAGRÆA PEREGRINA (*Spot-flowered Fagræa*).—Native of Bantam, in the western division of Java. Leaves large and lance-shaped; flowers pure white, irregularly spotted. A handsome species.

GARDENIA CITRIODORA (*Citron-scented Gardenia*).—A low-growing, exceedingly free-flowering species. The flowers are produced from the axils of the leaves; they are of a pure white, and as sweet as *G. radicans*. It is so compact in habit, and flowers when the plant is so young, that every stove in the kingdom ought to have one or more plants of it.

GARDENIA PLANTII (*Plant's Gardenia*).—Another fine species, sent home by Mr. Plant from the Zulu country, South Africa. It is a fine bush, bearing large, bell-shaped white flowers, which are very fragrant and very freely produced.

GLOXINIA KERCII (*Kercy's Gloxinia*).—The varieties of *Gloxinia* are so numerous that their name is legion. This species, however, is quite distinct from any other. It is of the drooping kind, and the flower is very large. The lower surface of the tube is of a creamy yellow, and marked with two prominent grooves, having a central ridge between them, thus giving it a boat-shaped appearance. These parts are marked across with a violet band, or belt, giving the flower a strikingly distinct appearance. This is a decidedly worthy plant.

GONIOPHLEBIUM UNDULATUM (*Waved-leaved Goniophlebium*).—A lovely Fern from Java, with long, pendent fronds. The rachis is well clothed with bright green pinnules. It is peculiarly adapted for basket culture, the fronds hang down in a most graceful manner.

HOYA GRANDIFLORA (*Large-flowered Hoya*).—Found by Mr. John Henshall, Messrs. Rollison's collector, near the shore of the Island Nœsa Kanabangan to the south of Java. The flowers are as large as those of *H. imperialis*, and are of a pure white; the foliage is elliptic and slightly woolly.

IXORA ACUMINATA (*Pointed-leaved Ixora*).—Flowers of a pure white and fragrant; leaves and habit excellent; flowers abundantly, even when young. It is a native of the East Indies.

IXORA AFFINE (*Related Ixora*).—A beautiful species, with large trusses of pink flowers produced abundantly. A native of Java.

IXORA AMBOINENSIS (*Amboyna Ixora*).—A very superior species, with trusses of flowers of an immense size, and of an orange colour shaded with scarlet. It forms a compact bush, and flowers most abundantly.

LYGODIUM POLYSTACHYON (*Many-rowed Lygodium*).—Fronds branched in regular rows, upper surface of the pinnæ very downy. This beautiful Fern was found by Mr. Thomas Lobb in Central India. Every Fern-grower ought to procure this fine new species.

PLOCOSTEMMA LASIANTHUM (*Woolly-flowered Plocostemma*).—A new genus allied to *Hoya*. This species has its flowers in clusters of an orange colour. The inner part of the petals are covered with a snow-white down. The petals reflex till they touch the flowerstalks, and are fragrant. The leaves are large and handsome, and the whole plant when in bloom is very beautiful.

POTHOS ARGYRÆA (*Silvery Pothos*).—This is a decided acquisition to the lovers of variegated plants. The leaves are obliquely ovate, of a rich deep green ground colour, distinctly blotched with silvery white, and the same colour is spread irregularly in a band-like form on each side of the midrib. It is suitable either to be grown in a pot or in a basket suspended.

The habit is neat and compact. It is a gem in its way worthy of general culture.

PTERIS ARGYRÆA (*Silvery Pteris*).—This is, indeed, a novelty. It is a variegated Fern, of noble aspect and of easy culture. The broad-formed pinnæ have each a wide stripe in the centre of silver-shining white, which, contrasted with the lively sea-green, gives the plant a charming appearance.

RHYNCSOSIA VOLUBILIS (*Twining Rhyncosia*).—A stove climber, native of Sierra Leone. The flowers are produced on fine pendent racemes, which are densely covered with Pea-shaped blooms of a purple and lilac colour.

SELAGINILLA ATRO-VIRIDIS (*Dark-green Selaginilla*).—A low-growing, beautiful species, sent from Borneo by Mr. T. Lobb to the Chelsea Nursery. Fronds repeatedly branched, broad, and well defined; foliage dark-green.

SELAGINILLA LOBBII (*Lobb's Selaginilla*).—This species is also from Borneo, from the same collector who sent the preceding species. Its fronds are much like a Fern, and have the same purplish metallic lustre as the well-known *S. cæsia*.

SELAGINILLA RUBRICAULIS (*Red-stemmed Selaginilla*).—Introduced by Mr. Sims, of Foot's-Cray. As the specific name imparts, the stems are red—quite a novel feature in these pretty plants.—T. APPLEBY.

(To be continued.)

HOUSE AND TOWN SEWAGE.

(Continued from page 129.)

CHEAPNESS.—The sewage of a house costs nothing; and if used on the ground around it, even if pumped from a tank, the cost of the pump would soon be saved by the entire avoidance of the annual expenses attendant upon the filthy processes of emptying dead-wells and cesspools.

Then, in support of that startling result of our own experience that—THE SEWAGE OF EVERY HOUSEHOLD IS MANURE SUFFICIENT FOR THE PRODUCTION OF ALL ITS VEGETABLE FOOD—a fact that cannot be too generally and continually urged—we have this testimony of Dr. Lyon Playfair:—"Human excrements contain (with the exception of one ingredient—silicate of potash) all the ingredients essential to fertility. Estimating the amount of the effete matter of one man at an amount so low as 547 lbs. yearly (1½ lbs. urine, 1¼ lbs. fæces daily), so rich is this manure in phosphates, that the collected excrements of two men would suffice to manure an acre of Wheat or of Peas; or that of one man a whole acre of Turnips, supposing the green herbage were returned to the soil. In fact, when we recollect that a pound of urine contains all the ingredients necessary for the production of a pound of Wheat, it is incredible folly to allow all the valuable refuse of our large towns to run to waste, when at the same time we are sending fleets to Ichaboe and Peru for what we are wasting at home."

Dr. Playfair might have added with equal truth, that the excrementitious matters we are thus fetching from other regions of the world are far more expensive, yet not more powerful, as manure, than the excrementitious matters of our own sewers. On this point we will only quote the statement of one of our best practical farmers, the late Mr. Smith, of Deanston, who thus details his experiments made purposely on a meadow in Lancashire, by applying to separate acres at the rate of fifteen tons of farmyard manure per acre, three cwt. of guano, and eight tons of sewer water.

	£	s.	d.
Cost of manuring one acre with sewer water	0	12	9
Ditto with guano (2½ cwt.) at 8s.	1	0	0
Ditto with farmyard manure, 15 tons, at 4s.	3	0	0
Ditto with sewer water	0	16	6
Ditto with guano (5 cwt.) at 8s.	2	0	0
Ditto with farmyard manure (30 tons), at 4s.	6	0	0

The guano and farmyard manure "in their effects were found to be inferior to the sewage water."

As we have already stated, the sewage of a town taken collectively can never be available unless arrangements are made to keep them from excessive dilution by the rain and other surface water usually mingled with it in the sewers. It becomes so weak and so bulky, that its cost of carriage to a distance is too excessive. That some arrangement could and ought to be made to avoid this dilution we have no doubt; and to prove the vast importance of making such an arrangement no other facts are needed beyond the few following:—

Mr. Matthew states in the *Glasgow National*, that the sewage of that city is sufficient to irrigate, at the least, 15,000 acres; and valuing the manure at considerably less than according to Liebig's formula, it would be worth £300,000. The Rev. J. C. Blair Warren, of Horkesley Hall, Essex, showed to the Royal Agricultural Society that the sewage of London was sufficient to fertilise 57,000 acres, which at the same ratio of value would be worth £1,140,000. Speaking of the sewage discharged annually from London into the Thames alone, a distinguished chemist thus speaks:—"The annual value of the chief constituents of the sewage water which passes into the Thames from the King's Scholars' Pond Sewer is £23,360, and of that which flows from all the sewers of London, on the supposition that the fluid they discharge is of equal strength, £433,879."

In carrying this calculation still further, we cannot do better than quote from a lecture delivered by Professor Guy at the Russell Institution. "In Flanders, where manure is carefully collected, the annual excreta of an adult are valued at £1 17s. Considering the enormous additions made to this manure in our towns, it will not be thought unreasonable to estimate the value of that part of the refuse which now runs to waste at £2 per head of the population; and supposing that in England and Wales the towns which are guilty of this extravagance contained in all only 5,000,000 inhabitants, we have an annual waste of at least ten millions of money! If this estimate were extended to the whole of the United Kingdom, it seems highly probable that the value of town manure annually wasted would be twenty millions sterling."—J.

(To be continued.)

NOTES UPON FERNS.

GYMNOPTERIS QUERCIFOLIA. Bernh. (Synonymes—*Acrostichum quercifolium*, Retz. *Osmunda trifida*, Jacq.) Sterile fronds ternate, membranaceous, clothed with short, downy hair below, somewhat ciliated, four inches long; the middle pinnule much the largest, oblong, obtuse, sinuated or partially lobed; the two side-pinnules ovate, sub-cordate, or auricled on the lower side of the base. Veins compoundly anastomosing with free veinlets in the areoles. Fertile fronds erect on a slender footstalk, which is three times as long as that of the sterile frond, contracted, ternate, with linear segments; the whole under surface covered by the sporangia. Stipes hairy, slightly squamose at the base. Rhizome creeping.

A native of the warmer parts of China, Cochinchina, and Ceylon. It was introduced from the latter island a few years ago, and, as it is easily increased by division, it is now become pretty plentiful. The sterile Oak-leaf-shaped fronds overlapping each other just above the level of the soil, and the fertile ones shooting up among them, render it well worthy of cultivation, even in a limited collection. From its small size it is also well adapted for Wardian Cases. The name "*Gymnopteris*" means naked-Fern, and refers to the sori not being covered by an indusium.

HYMENODIUM CRINITUM. Fee. (Synonymes—*Acrostichum crinitum*, Sw. *Dictyoglossum crinitum*, J. Sm.) Sterile fronds nearly erect, oval, from fifteen to eighteen inches long by from seven to ten wide, thick and leathery, with numerous, long, thin, black hairs scattered over both surfaces. Veins all of about one thickness, except midrib or costa, reticulated so as to form a network of hexagonal meshes. Stipes short, thick, and densely covered with the same sort of hairs. Fertile fronds about half the size of the others, the whole under surface covered by the black sporangia. The rhizome thick, decumbent, or slowly creeping. This is also clothed with the purple-black scales, or hairs, so plentifully produced on all parts of the plant. This is a native of the West Indies, but even there is by no means common. I am assured by persons living on the spot, that they have sought diligently for it where other Ferns abound, and have only found a few isolated plants of it. Although introduced so long ago as the end of the last century it still remains rare, and commands a high price in the nurseries. This may be accounted for by the difficulty of parting it, and the rarity with which it grows from spores. Almost all are imported plants. It belongs to the same division of the family as the last—viz., *Acrosticheæ* (characterised by the fertile fronds being distinct from the sterile, more or less contracted, and the whole underside of the fronds being covered by the sporangia), but two plants more unlike each other in general appearance could scarcely be selected. This *Hymenodium* is the most curious Fern grown, and is utterly unlike any other plant

in cultivation. It succeeds best grown in the still, warm, moist atmosphere of a small house.

BLECHNUM LANCEOLA. Sw. Fronds entire, glabrous, linear-lanceolate, acuminate, very rarely auricled at the base, from three to six inches long; the sterile fronds are shorter and broader than the fertile ones, and borne on shorter footstalks. Sori consisting of two lines, one on each side of the midrib, each covered by an indusium opening inwards. Veins of sterile fronds, simple, forking; in the fertile fronds they are similar, but are connected by one vein on each side running parallel to the costa, and bearing the sporangia. Vernation fasciculate, but producing runners in all directions. Stipes with a few scales near the base.

A native of Brazil, where it grows abundantly. This is the smallest species of *Blechnum* in cultivation, and is also the only one with entire fronds. It produces fertile much more plentifully than it does sterile fronds. It is very rarely that it produces one auricled at the base, though Dr. Seemann found that at Veraguas, in the Isthmus of Panama, that was the more usual form. He found also some varieties with ternate fronds. There is nothing particularly striking in the appearance of this Fern, but its small size renders it useful for growing in Wardian Cases, where its entire dark green lance-shaped fronds contrast well with the cut-leaved species.—KARL.

NOTES ON NEW OR RARE PLANTS.

SIPHOCAMPYLOS MANETTIÆFLORUS. Hook. Nat. ord., *Lobeliaceæ*. Native of New Granada.—Erect, dwarf, somewhat woody at the base, herbaceous above. Branches thickly clothed with leaves. Leaves alternate, shortly petioled, rigid, oblong-ovate, sometimes nearly spatulate; margins incurved and obscurely serrate; veins much reticulated, and very prominent on the under side, upper side glabrous, clothed below with short hoary hairs. Peduncles short, axillary, solitary, one-flowered, and supporting two minute bracts half way between the base and the apex, downy. Calyx tubular, short, turbinate, dividing at the limb into five, erect, open, subulate segments. Corolla tubular nearly the whole of its length, curved slightly, compressed laterally; limb composed of five, ovate-lanceolate, nearly equal segments, the two upper ones rather more deeply divided and slightly larger than the others. Anthers brownish, and terminated by tufts of minute hairs. Stigma two-lobed.

A very useful, rather free-flowering species of this interesting genus. The flowers, which are yellow and crimson, are very beautiful, and appear towards the end of summer and in the autumn months. A compost of about two parts peat and one of loam, with plenty of sand, is very suitable to it. The stove is the proper place for it in winter, but it will do very well in the greenhouse during summer. Cuttings root freely.

HIBISCUS MOSCHENTUS. L. Nat. ord., *Malvaceæ*. An inhabitant of the swamps and salt marshes in Canada, but more frequent throughout the United States of North America.—About four feet high, suffruticose, with strong, usually undivided stems. Leaves large, ovate-acuminate, inclined to the cordate form at the base, and occasionally trilobate, coarsely serrate; veins numerous, strong, and reticulated, clothed above and below with short soft hairs. Peduncles short, stout, axillary, often coalescing with the petioles for some distance above the base. Involucl of a number of linear-lanceolate, green, downy leaflets. Calyx tube short; limb divided into five, ovate, slightly acuminate lobes. Corolla very large, rose-coloured or white, with a crimson base internally. Staminal column and pistil included within the corolla. Stigma five-lobed.

It is difficult to overrate the beauty of this fine plant. Good habit, fine foliage and noble flowers, are terms inadequate to convey a proper conception of its character to the mind unaided by the eye. The flowers are quite as large as those of the common Hollyhock, and the habit less coarse. It is perfectly hardy, and will succeed in any good garden soil. Division is the ordinary way of propagating it; but it may, perhaps, strike in the same way and as freely as the Hollyhock. It flowers in August, September, and November.

MALVA GERANIODES. Schlocht and Chamiss. Nat. ord., *Malvaceæ*. Native of Mexico.—Herbaceous, with spreading, trailing, branches, all of which are covered with long, fasciated hairs. Leaves somewhat triangular, divided into three lobes, which are again cut into several segments, dark green and hairy above, paler and glabrous below. Flowers axillary and several together. Involucl composed of three small leaflets, lanceolate, or setaceous,

Calyx divided into five ovate-lanceolate segments, closing over the fruit in maturity. Corolla large, bright rosy purple. Staminal column and pistil included.

This beautiful plant weathers our winters with difficulty. It has a trailing habit like the Strawberry, and, like it, sends roots out at every joint, from which a plentiful supply of stock may be had, and which will be safe with the protection of a cold frame in winter. It succeeds well in a light garden soil, out of doors in summer, and is also an excellent pot plant.

SCÆVOLA MICROCARPA. Cav. Nat. ord., *Goodeniaceæ*. Native of New South Wales.—A dwarf, suffruticose, smooth plant. Leaves alternate, on very short petioles, oval, deeply serrated, and furnished with a small, bluntish mucro. Flowers sessile, axillary, and solitary. Bracts two, linear, or linear-lanceolate, about the same length as the corolla. Calyx composed of five minute, ovate teeth. Corolla monopetalous, the lower part tubular, but split on the upper side, expanding into a flat, spreading limb, with five, deep, linear segments, pale lilac or violet. Stamens five, with slightly flattened filaments and oblong anthers. Pistil one, about the same length as the tubular part of the corolla; stigma round and cup-shaped, fringed curiously around the margin with very delicate hairs. The cup-shaped stigma collapses and becomes quite flat in maturity.

Though very pretty, this cannot be considered a showy plant. It blooms continuously from July till the end of October. It is not fastidious as to the kind of material of which its compost may be formed, provided it be sufficiently open and well-drained; but, perhaps, good open peat with a little light loam is the most suitable soil it can have. A cold frame or an airy place in the greenhouse is a suitable place in which to winter it; and in summer it is better out of doors, where, screened from the strong rays of the sun, it may have a free exposure to light and air. Cuttings root moderately freely; and the plant may also be increased by division of the root.—S. G. W.

PRUNING VARIEGATED HYDRANGEA.

I HAVE a fine plant which flowered freely last summer, and made very strong wood; the plant is two feet high, is in a seven-inch-diameter pot, and has branches with many fine buds on them. I shall be obliged for instructions how to prune for next year's flowering. Also, close on the top of the soil in the pot there is a cluster of suckers. I wish to know if they should all be broken off. The pot is full of roots, and I wish to know what size pot I should shift it into for future flowering.—M. F.

[Your plant wants no pruning just yet; but after it blooms you had better cut back three or four of the longest and barest shoots to two or three eyes, to keep it bushy, and so continue from year to year. It is well to keep the variegated Hydrangeas cramped at the roots—that makes them whiter in the leaves; and giving them more water when they show for bloom and all the time they are in flower will make up the difference. Pot yours in March into a pot one size larger, and then make cuttings of the bottom suckers.]

THE VINES AT STOCKWOOD.

I HAVE no wish to prevent Mr. Rattray expressing his opinion as confidently and as frequently as he chooses, that, without fear of contradiction, the Grapes in the vinery alluded to by Mr. Fish at p. 24 could not be excelled, if equalled, in any part of Great Britain previously to my connection with them; but he must allow me to state that that was not exactly my opinion after having seen merely a small portion of the Vines in Great Britain.

I am not aware that I ever expressed an opinion as to the way in which the Vines were planted; but I satisfied myself that the roots had got too deep to admit of the Vines continuing as productive and as well as luxuriant as I wished. I therefore raised them; and certainly I imagined that, with the sanction of my employer, I might do all this, and disturb other roots too, if I saw reason for so doing, without either consulting Mr. Rattray as to the propriety of such operations, or admitting his right to infer that such operations, when performed, were either unfair or unjust to the character of my predecessor.

I think the men who assisted in digging the roots out of the clay are more competent judges of the condition the roots were in than Mr. Rattray, who has not seen the Vines for the last five or

six years that I am aware of; and I am well informed that the Vines were planted five or six years previously to his coming to the place at all.—J. PEACOCK, *Stockwood*.

PAMPAS GRASS.

I HAVE a plant of the Pampas Grass planted in November, 1858, which has done very well. There have been twelve spikes of flower on it this season, each spike six feet long, with two feet and a half of flower. The plant was very small when planted, and never got any water. When planted, I put to the soil a good barrow-load of manure from an old Melon-frame. My soil is very light. At the present time (November 22nd), the plant is in beautiful flower.—R. M. D., *Scotland*.

LINTON PARK.

THE elegant and commodious mansion of this beautiful demesne of Lady Julia Cornwallis is situated about the middle of a sloping bank four miles south of Maidstone, and commanding from its south, or terrace front, a splendid view of the Weald of Kent, with its rich Hop-grounds and next-to-unrivalled plantations of all kinds of hardy fruits, requiring only a few churches and turrets, more conspicuous in the extended landscape, to enable it to contrast and compare with the panoramic view seen from the terrace front of the Crystal Palace at Sydenham.

A great disadvantage, however, has been the result, especially under present arrangements, from placing the mansion on the slope of the hill instead of nearer to its crest. There may have been good reasons for the course adopted, though these might not readily strike the attention of a visitor. It is our province merely to allude to matters as we find them, and because we think that even in this respect Linton Park furnishes valuable lessons.

Let a stranger enter by the lodge placed in the valley part of the pretty village of Linton; and as he sweeps round graceful curves, and gradually ascends to the mansion, every glimpse he obtains of it through the park scenery conveys ideas of grandeur and dignity. But on entering by the Maidstone or principal lodge, and ultimately approaching the house through a straight, noble, wide avenue of Elms, the roadway being opposite the centre of the house, so steep does the slope become, that it looks as if you were to be landed in at the second or third-floor windows. Though one story on the north side is sunk underground, and that is surrounded with an elegant open balustrading concealing outside passages and windows in that story, unless you are inquisitive enough to pry and look for them—and though a large, open, level space of gravel and grass for carriages is placed in front of the mansion—yet so steep is the slope, that, instead of venturing to take carriages down it, the roadway turns abruptly to the east, and winds round by a somewhat easier incline, until it gains the entrance level. Thus the distinctive elegance of the straight avenue approach is lost by the mode in which it terminates. The mode itself is not only unpleasant but dangerous to a stranger; and looking upon the house so near and yet so much below you, does away with that dignity which we cannot help feeling as we approach from the Linton lodge.

What ought to be done with it? That is not so easily decided. From the time that the mansion appears straight before you from the avenue, any deviation from the straight line is not only unpleasant, but conveys the idea that you are to be taken by some roundabout way merely to increase the distance. As the avenue is so wide, the roadway might be lowered to a great distance without injuring the trees—a sloping green bank reaching from near the boles of the trees to the roadway, so as to permit an easy decline to the large space of gravel in front of the mansion. Provided the avenue is continued as the approach, this would be the only satisfactory mode; but the labour and expense would be enormous. The mansion might be blocked out by planting, and a turning made to the east as now, but farther back, or to the west, between the avenue and the village of Linton; but in the latter case, a beautiful narrow avenue of Elms leading along the brow of the hill to the church and village would be interfered with, in order to cut the bank obliquely before joining the present approach from Linton, and, in either case, the grandeur of the avenue would be gone, from a termination being visible. Rather than the present termination, some would prefer driving along the highway to the Linton lodge, or having another lodge at the bottom of the hill; but by the former, the house

would be passed and then returned to, and by the latter, there would only be a short space to traverse before reaching the mansion, and thus oppose the idea of extent.

The stables, offices, and kitchen garden, &c., are placed eastward of the mansion, and the pleasure-ground to the south of the whole. The carriage road from the Maidstone lodge enters the avenue nearly at right angles. The park is more extended on the east than on the west side of the avenue; and supposing that the roadway instead of entering the avenue at all was continued westward through the park, so as to permit the house to be reached by a long curved line along the slope, the decline then would be gradual, and the mansion would be *scarcely seen, if at all, before it was reached*. The materials in the old road would go far to form the new; and the avenue, being grass from side to side, would form, with its straight lines and sky termination, a fine contrast to the picturesque scenery on the south side of the house. This, I believe, would be the remedy approved of by our good friend Mr. Robson, and I hope that some day he may have the pleasure of carrying it out.

The mansion and grounds were greatly enlarged and improved under the auspices of the late Earl Cornwallis. I gained from a neighbouring gardener, and not from Mr. Robson himself, some idea of what work had fallen to his share before a mass of Laurels on the south front was exchanged for the present beautiful terrace. There being an outjutting wing of offices on the east side of the entrance front, the dead wall of which is relieved by panels, &c., the open balustrading I have alluded to in front of the house extends westward beyond the house and widens to balance the wing, and then, by a series of square ramps, goes down the bank and forms the end of the terrace. This encloses a good piece of gravel at the west end of the mansion, capable of being used for many ornamental purposes.

Before I enter into further particulars, in order that our readers may be as wise as ourselves, I would wish to direct their attention to *fig. 1.*, as a line or section taken from the centre of the mansion, right southwards through the slopes, and landings, and new flower gardens, &c.

extending eastward and westward from the steps as far as the ends of the mansion, are covered with Laurels, kept neatly cut, and allowed to intrude just a little on the level, landings, or terraces of turf. To prevent the Laurels looking monotonous they are dotted somewhat regularly with good specimens of Cypress, Red Cedar, &c. These slopes and landings extend a little beyond the ends of the house, but without Laurels, and gradually melt into a sloping bank ornamented with evergreens, &c. These slopes and landings, along with the terrace, have a base of 92 ft.; and the height of the terrace above the level between VII. and VIII. is 29 or 30 ft. The principal suite of rooms is 11 ft. higher.

VIII. Is a sloping bank of grass, with steps in its centre. The wide space between VII. and VIII. is the position for a large oval and a new mode of grouping.

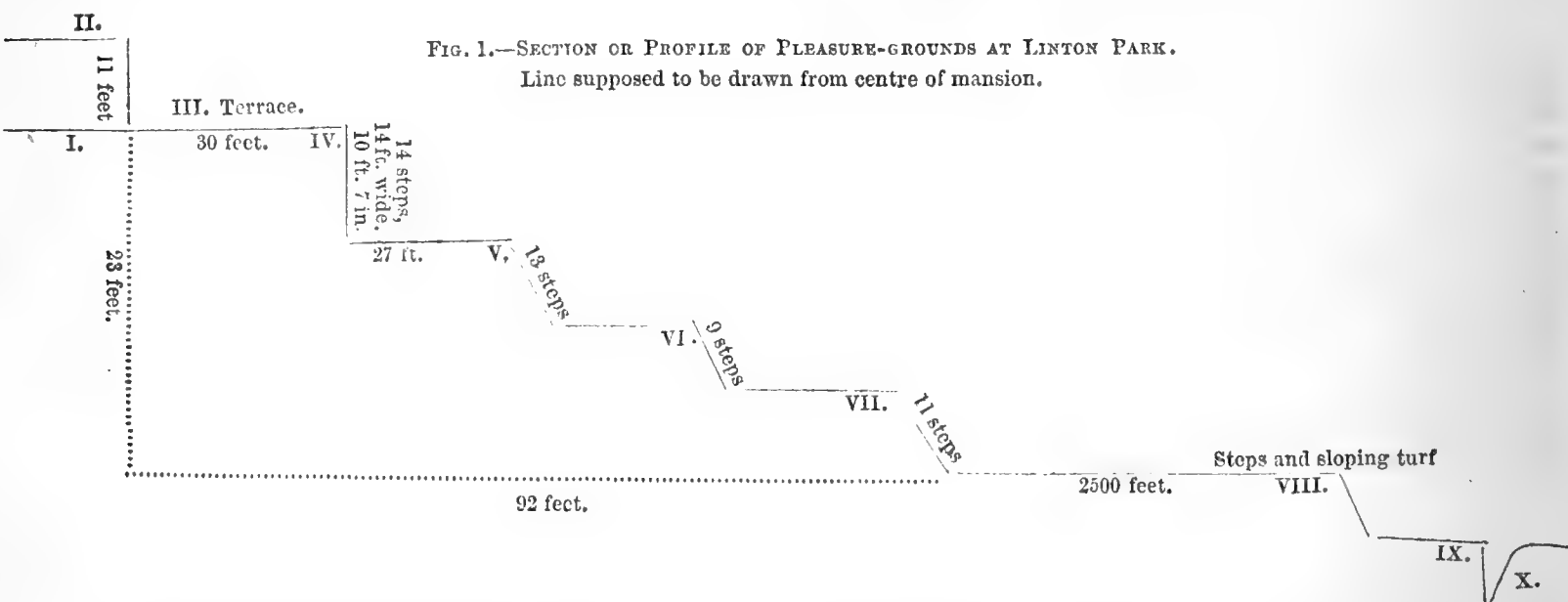
IX. A sunk fence 7 ft. in depth; to be surmounted by an open balustrade in the open space, and carried on each side until it loses itself in evergreens. The space between VIII. and IX. is devoted to beds on grass in the usual mode, of which and oval bed we shall give plans next week.

X. Part of park ground line, which slopes considerably for a good distance to a lake, which was enlivened with a small vessel with sails set. Beyond this the landscape seemed to rise gradually for a great distance.

Having thus given the main features, I will shortly notice a few particulars.

Westward of these sloping banks, but separated from them by specimens and masses of trees and shrubs, is what used to be the large principal flower garden on a sloping lawn. Further west still, but concealed from the approach from Linton, is a dell turned into a wild romantic garden, with roots, Ferns, Pampas Grass, &c., disputing for the pre-eminence. The beds in the flower garden were as nice as could be in the beginning of October; but the end of the terrace being to the north of them, and the ground sloping to the south, the flowers could only be seen to the best advantage when looking up at them from the end farthest from the terrace. When flower gardens must be thus placed the

FIG. 1.—SECTION OR PROFILE OF PLEASURE-GROUNDS AT LINTON PARK.
Line supposed to be drawn from centre of mansion.



I. Part of ground floor of mansion on south side.

II. Drawing-room floor and principal suite of rooms, with balcony and open balustrade in front, and elegant Corinthian pillars above that height. The floor of these rooms is eleven feet above the ground or terrace level.

III. Terrace 30 ft. in width, and 316 ft. in length. The front of the mansion being 150 ft., it will be apparent that the terrace extends beyond it at each end, and especially at the west end, as already referred to.

IV. Upright terrace wall, with open balustrade about 2½ feet above the terrace level: height altogether, 10 ft. 7 in. The elegant little columns of this balustrading and the base and coping are formed of Portland cement; and no weather has had the slightest influence on them, except to harden them, if possible, more. The first level of 27 ft. is reached by a massive double flight of steps and landings in Crystal Palace terrace fashion.

V., VI., VII. are sloping banks with level landings, or terraces, between. The slopes have stone stairs 14 ft. wide; and having, as they are numbered respectively, thirteen, nine, and eleven steps. The landings for that width are also stone or Portland cement, with provision for vases on the sides. These slopes,

flowers can only be seen to first-rate advantage from certain points; and in this case these points would not be nearest to the mansion. I was glad, therefore, to find that Mr. Robson proposed laying down a fresh and curtailed plan, and devoting the place entirely to Roses, surrounded by climbing ones on pillars and chains, or rods, so as to festoon regularly and gracefully. Roses in general should be by themselves, as they do not group well with the generality of bedding plants. This rosery will be an agreeable change to a person coming from the striking view that presents itself in front of the mansion. I should not be surprised to hear some day that, by means of steep banks, the ground for the rosery has been thrown upon a level, that all the plants might have an equal chance to catch the eye of the beholder.

Getting now to the terrace we perceive that the lower story of the mansion is fronted with an open arched corridor, or colonnade, and heated with hot water for plants; the arched openings having glass to fit in in winter. The colonnade had evidently been formed when strength and heat were considered of more importance than light for plants. Were the arches or openings greatly widened, or were iron pilasters or pillars substi-

tuted altogether, more light would not only be afforded to the plants, but a greater cheerfulness infused into the adjoining rooms. The outsides of the colonnade were nicely clothed with Ivy, Roses, Scarlet Geraniums, Ceanothuses in great beauty, Clianthus, Myrtles, Glycines, Chimonanthus, Fuchsias, Magnolias, &c. Some of the Magnolias had not only got in among the balustrading, but mounted the fine Corinthian columns; and Mr. Robson stated that they were such favourites that they must have their way whatever an architect might say. A piece of the east end of the corridor was devoted to an aviary for Canaries, &c.

The upright terrace wall among other things had fine plants of Roses, Jasmines, Cotoneasters; and in high health Ceanothuses, *Veronica speciosa* and varieties, *Coronilla glauca*, *Acacia verticillata*, *Eugenia Ugni*, *Cytisus proliferus*, *Genista Canariensis*, *Erythrina cristagalli*, *Fabiana imbricata*, &c.

Before noticing these plants on the wall I had looked over the balustrade of the terrace, and was much struck with the appearance of the plants in the border—all the more so, because few would expect to find them there. These were great masses of plants of *Yucca gloriosa*, *acuminata*, and some of *aloëfolia*, with several of the smaller ones, as *filamentosa*, &c. The stumps of fine flower-stems which had been gay in summer were still perceptible. Some were coming into flower, and others were showing strong, but too late to open well this season. A few other plants were in the border; but as Mr. Robson has been nursing Yuccas in other places, he intends with great propriety to devote the border entirely to varieties of such plants, and perhaps a few of some of the allied genera, as the now-popular Tritomas. It will be observed that this border of peculiar plants can only be seen well either by looking over the balustrade, or from the green landing or terrace in front of them. They form no feature from any other part of the ground. Finding them thus unexpectedly where they are gives them an additional charm. R. FISH.

(To be continued.)

GARDENIA CULTURE.

IN your number of the 22nd inst. I observe that one of your correspondents asks for instruction as to the best treatment for Gardenias. Your reply is rather lengthy, yet you omit a very material ingredient. If your correspondent will cover his pots to the depth of one-eighth of an inch with the ashes of wood, he will find an immediate improvement in his Gardenias. Powdered charcoal is a good thing, but wood ashes are much better. As to temperature, it will be found that the Gardenia resembles the Camellia, and will not stand any sudden or great change. If the Gardenia is wanted for a drawing-room, it must make its flowers in a temperature more or less equal to that of a drawing-room; and if wanted for a hothouse it must make its buds in one.

I write from a long experience of this flower in a tropical climate, where, with the application of wood ashes, it flowers nearly all the year round.—A CONSTANT READER, *Manchester*.

NEW BOOKS.

THE ROSE ANNUAL.*—We have now before us the second year's issue of Mr. W. Paul's beautiful Annual. It is embellished with admirably-executed portraits of four of the best new Roses of the season—viz., *Anna de Diesbach*, a very large cupped flower of a fine pure rose colour, belonging to the Hybrid Perpetual section. *President*, a fine Tea-scented Rose, salmon and fawn colour, in the way of *Adam*, but very superior to that variety. *Evêque de Nîmes*, raised from *Géant des Batailles*, is, as Mr. Paul observes, of "the colour of red sealing-wax, often dashed with blackish crimson." *Queen of Denmark*, a very large full flower, cupped and globular. It is of a transparent flesh, slightly shaded with lilac. To Rose-growers, and those who are interested in the cultivation of that beautiful flower, Mr. Paul's Annual furnishes all possible information regarding the old and the new varieties, the exhibitions of the past year, and the influence of the weather during the various months on the bloom of the past season.

CARTER'S ANNUAL FOR 1860.—Messrs. Carter have long been known for the attention they pay to the procuring of new annual flower-seeds. Those they intend to send out this year have been illustrated in a large coloured plate, admirably executed, which

contains *Dianthus Chinensis Heddewigii*, *Dianthus Chinensis laciniatus* in several varieties of colour, Captain Clarke's new blue Sweet Pea, *Lobelia gracilis rosea*, *Callirhoe digitata*, *Nigella Hispanica alba*, *Clarkia pulchella integrifolia*, *Nigella Hispanica atro-purpurea*. They have also issued a plate of their new *Yellow Tom Thumb Nasturtium*—a lovely little bush, with as many flowers as leaves on it.

LADY DOWNE'S AND FOSTER'S SEEDLING GRAPES.

IN THE COTTAGE GARDENER of the 15th ult. an inquiry by "VITIS" is made of the origin of *Lady Downe's Black Seedling* and *Foster's Seedling Grapes*. Their parents were the *Black Morocco* Grape impregnated by the *Sweetwater*. "VITIS" thinks it strange that one should be named after Lady Downe; but his surprise will cease when he knows that the reason was because Lady Downe was the mother of my present employer, the Hon. P. Dawnay. When the bunch of *Black Morocco* Grapes was cut and sent to table, Lady Downe thought them so good that she sent to the garden for a pot filled with soil to sow the seeds in. When the seedlings had come up, and the seed-leaves fully expanded, they were handed over to my care. What is most strange is that the two varieties should be the produce of the same bunch.

I hope "VITIS" will now see the reason why one is called *Lady Downe's Black Seedling* and the other *Foster's Seedling*, because we both had a finger in the pie in raising them.—THOS. FOSTER, *Benningborough*.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 131.)

PEARS.

JOSÉPHINE DE MALINES.—Fruit about medium size. Skin yellow, with a greenish tinge on the shaded side and with a tinge of red on the side next the sun; the whole surface strewn with large russet spots. Eye open, set in a rather shallow depression. Stalk three quarters of an inch long, stout, and inserted in a narrow cavity. Flesh yellowish, with a tinge of red, melting and very juicy, sugary, vinous, and richly flavoured, with a high rosewater aroma.

A most delicious pear, in use from February till May. The tree is hardy, and an excellent bearer.

La Juive. See *Jewess*.

Kaissoise. See *Beurré d'Amanlis*.

Kartoffel. See *Colmar d'Aremberg*.

De Kienzheim. See *Vallée Franche*.

King Pear. See *Caillot Rosat*.

KING EDWARD'S (*Jackman's Melting*).—Fruit very large, the size and shape of Uvedale's St. Germain. Skin smooth and shining, of a beautiful grass-green colour, which it retains even when ripe, and with a flush of reddish-brown on the exposed side, thickly dotted all over with large brown russet dots. Eye open, set in a narrow, plaited basin. Stalk an inch long, inserted without depression. Flesh fine-grained, tender and melting, juicy, but not very sugary, and with a perfume of musk.

The largest really melting pear, and, for its size, very good. Ripe in September and October.

Knight's Monarch. See *Monarch*.

Konge. See *Windsor*.

Lafare. See *St. Germain*.

LAMMAS (*Huntingdon*).—Fruit below medium size, pyramidal, regular and handsome. Skin pale yellow, streaked with red, and covered with red on the side next the sun. Eye open, very slightly depressed. Stalk half an inch long, inserted without depression. Flesh tender, juicy, and melting, with an agreeable flavour. Ripe in the beginning and middle of August.

The tree is hardy, and a most abundant bearer.

* The Rose Annual for 1859-60. By William Paul, F.H.S., author of the "Rose Garden." London: Piper, Stephenson, and Spence.

Lammas [of the Scotch]. See *Crawford*.

LAURE DE GLYMES.—Fruit above medium size, pyramidal. Skin entirely covered with a coat of fawn-coloured russet, with mottles of lemon-coloured ground shining through. Eye open, set in a shallow basin. Stalk an inch long, stout and fleshy, not depressed. Flesh white, tender and juicy, sweet and highly perfumed. Ripe in the beginning of October.

De Lavault. See *Williams' Bon Chrétien*.

Lent St. Germain. See *Uvedale's St. Germain*.

LÉON LE CLERC DE LAVAL.—Fruit large, long-obovate, and rounding towards the eye. Skin smooth and shining, yellow, strewed with brown dots, and marked with tracings of russet. Eye large, with long, straight, narrow segments, set in a shallow basin. Stalk an inch and a half long, inserted without depression by the side of a fleshy lip. Flesh white, half-melting or crisp, juicy, sweet, and perfumed.

An excellent stewing pear, which in some seasons is half-melting, and is in use from January till May and June.

LÉON LE CLERC DE LOUVAIN.—Fruit medium sized, longish-oval, and blunt at both ends. Skin of a yellow colour, washed with red on the side next the sun. Eye large and closed. Stalk an inch long, and pretty thick. Flesh yellowish, half-melting, juicy, sweet, and pretty well flavoured. Ripe in the middle of November.

Both of the above are very distinct pears from Van Mons Léon le Clerc.

LEOPOLD THE FIRST.—Fruit medium sized, oval, inclining to pyriform. Skin greenish-yellow, covered with flakes and dots of russet. Eye open, irregular, slightly depressed. Stalk an inch long, thick and curved. Flesh yellowish-white, melting, very juicy, rich, sugary, and highly perfumed.

A first-rate dessert pear. Ripe in December and January. The tree forms a very handsome pyramid.

LEWIS.—Fruit medium sized, oblong-obovate. Skin pale green, assuming a yellow tinge as it ripens, thickly covered with brown russet dots and with patches of russet round the stalk and the eye. Eye large and open, slightly depressed. Stalk an inch and three quarters long, slender, and inserted without depression. Flesh yellowish-white, very tender, melting, and very juicy, rich and sugary, with a somewhat aromatic flavour.

An excellent pear, in use from November to January. The tree is an abundant bearer and hardy.

Liard. See *Napoléon*.

Linden d'Automne. See *Glou Morceau*.

LODGE.—Fruit about medium size, obtuse-pyriform. Skin smooth and shining, yellowish-green, mottled with darker green; marked with a few flesh-coloured dots on the side next the sun, and strewed all over with faint tracings of delicate russet. Eye closed, set in a shallow basin. Stalk upwards of an inch long, slender, inserted without depression. Flesh white, tender, melting, and juicy, but with no particular aroma or flavour. Ripe in October.

This is somewhat like Louise Bonne of Jersey, but very inferior to that variety.

Longueville. See *Hampden's Bergamot*.

LONDON SUGAR.—Fruit below medium size, turbinate. Skin pale green, becoming yellow when ripe, with a brownish tinge when fully exposed to the sun. Eye small, half-open, prominent, and surrounded with puckered plaits. Stalk an inch long, slender, obliquely inserted. Flesh tender, melting, very juicy, sugary, and musky. Ripe in the end of July and beginning of August.

Lord Cheyne's. See *Bergamotte d'Hollande*.

Louise d'Avranches. See *Louise Bonne of Jersey*.

LOUISE BONNE OF JERSEY (*Beurré d'Avranches*; *Bonne d'Avranches*; *Bonne de Longueval*; *Bonne Louise*

d'Arandoré; *Louise d'Avranches*; *William the Fourth*).—Fruit medium sized, pyriform. Skin smooth, yellow on the shaded side, but crimson next the sun, covered with crimson and russet dots. Eye small and open, set in a rather deep basin. Stalk three quarters of an inch long, obliquely inserted without depression. Flesh white, buttery, and melting, with a rich, sugary, and brisk vinous flavour.

A most delicious pear, ripe in October. The tree is a good bearer, and succeeds well as a pyramid on the quince.

Lucrate. See *Fondante d'Automne*.

Mabile. See *Napoléon*.

Madame. See *Windsor*.

MADAME DURIEUX.—Fruit medium sized, bergamot-shaped. Skin greenish-yellow, mottled with large patches of russet, particularly about the stalk, and dotted and streaked with the same. Eye closed, slightly depressed. Stalk three quarters of an inch long. Flesh white, melting, buttery, juicy, and with a bergamot flavour. Ripe in the end of October and beginning of November.

Madame de France. See *Windsor*.

Madeleine. See *Citron des Carmes*.

MARCH BERGAMOT.—Fruit medium sized, bergamot-shaped. Skin yellow, covered with minute russet dots, which cause it to feel rough. Eye open, set in a wide, even basin. Stalk an inch or more long, woody, inserted in a deep, round cavity. Flesh yellowish, firm, breaking, half-melting, very juicy, and with a high bergamot flavour.

An excellent pear for the season. Ripe during March and April.

Marianne Nouvelle. See *Beurré Bosc*.

Marie Chrétienne. See *Marie Louise*.

MARIE LOUISE (*Braddick's Field Standard*; *Marie Chrétienne*; *Marie Louise Delcourt*; *Princesse de Parme*; *Van Donckelaar*).—Fruit large, oblong or pyriform. Skin smooth, greenish-yellow, marked with tracings of thin brown russet. Eye small and open, set in a narrow, rather deep and uneven basin. Stalk an inch and a half long, inserted obliquely without depression. Flesh white, delicate, buttery, and melting, very juicy, and exceedingly rich, sugary, and vinous.

One of our very best pears. Ripe in October and November. The tree is an excellent bearer; but the bloom is tender. It succeeds well either on the pear or the quince, forming a handsome pyramid.

Marie Louise Delcourt. See *Marie Louise*.

Marie Louise Nova. See *Comte de Lamy*.

Maréchal de la Cour. See *Conseiller de la Cour*.

Maroit. See *Jaminctte*.

Marotte Sucré. See *Passe Colmar*.

MARTIN SEC (*Dry Martin*; *Martin Sec de Champagne*; *Martin Sec d'Hiver*).—Fruit medium sized, obtuse-pyriform. Skin smooth and delicate, entirely covered with cinnamon-coloured russet on the shaded side, and bright red next the sun. Eye small and open, set in a plaited basin. Stalk an inch and a half long, inserted in a small cavity. Flesh breaking, rather dry, but sweet and perfumed.

An excellent stewing pear, in use from November till January.

(To be continued.)

ROSES.

[In this list M. means "Macartney"—G. "Gallica"—H.C. "Hybrid Chinese"—H.B. "Hybrid Bourbon"—H.P. "Hybrid Perpetual"—B. "Bourbon"—T. "Tea-scented"—D. "Damask"—N. "Noisette."]

THIRTY FIRST-RATE ROSES FOR THE GARDEN, OR FOR EXHIBITION.

Cristata, or *Crested*, Prov. Rose. Pale edges; beautiful buds.

Gloire des Mousseuses, M. Blush; very large and full.

Boule de Nanteuil, G. Crimson purple; centre sometimes fiery.

Kean, G. Rich velvety purple; centre scarlet.

Charles Lawson, H.C. Vivid rose, shaded; large.

Coup d'Hebe, H.B. Rich deep pink.

Paul Ricaut, H.B. Light rosy crimson.

Baronne Prevost, H.P. Pale rose; very large.

Caroline de Sansal, H.P. Clear flesh colour, edges blush; very large.

Colonel de Rougemont, H.P. Pale rose, shaded with carmine; very large.

Comte de Nanteuil, H.P. Bright rose, darker edges.

Général Jacqueminot, H.P. Brilliant red, velvety; large.

Jules Margottin, H.P. Bright cherry; large and full.

Lord Raglan, H.P. Scarlet-crimson, edges violet-crimson.

Madame de Cambacères, H.P. Rosy carmine; fine form.

Madame Domage, H.P. Bright rose; very large.

Madame Knorr, H.P. Bright rose, edges paler; large and fine.

Madame Masson, H.P. Reddish-crimson, changing to violet, velvety.

Madam Rivers, H.P. Clear flesh; fine form.

Madame Vidot, H.P. Transparent flesh, shaded with rose.

Prince Léon, H.P. Fine bright crimson.

Souvenir de la Reine d'Angleterre, H.P. Bright rose; large and fine.

Triomphe de Paris, H.P. Dark velvety-crimson.

William Griffiths, H.P. Pale satin-like rose.

Souvenir de Malmaison, B. Clear flesh, edges blush; very large and full.

Lamarque, N. Sulphur-yellow.

Devoniensis, T. Pale yellow, superb; very large.

Gloire de Dijon, T. Yellow, shaded with salmon.

Madame Villermoz, T. White, centre salmon; large and full.

Moiret, T., pale yellow, shaded with fawn and rose.

TWENTY-FOUR GOOD ROSES FOR THE VICINITY OF TOWNS.

Baronne de Wassenauer, M. Bright red; flowering in clusters.

Reine Blanche, M. Pure white; large and full, in the way of *Madam Hardy*.

La Ville de Bruxelles, D. Light rose, margin blush.

Madam Hardy, D. White; beautiful, large, and full.

Madame Sœtman, D. Creamy white, shaded with buff.

Colonel Coombes, G. Light crimson, shaded with purple; very large.

Duchess of Buccleuch, G. Dark rose, margin blush.

Grandissima, G. Purplish-rose.

Ohl, G. Dark crimson and scarlet, shaded.

Belle Marie, H.C. Superb rose.

Brennus, H.C. Deep carmine; large and full.

Charles Duval, H.C. Deep pink; beautiful.

Chenedole, H.C. Light vivid crimson; very large.

Général Jacqueminot, H.P. Brilliant red, velvety; large.

Jules Margottin, H.P. Bright cherry.

Léon des Combats, H.P. Reddish-violet, often shaded with scarlet.

Louis Chair, H.P. Bright red, shaded with crimson.

Madame Martel, H.P. White, suffused with rose.

Mathurin Regnier, H.P. Pale rose.

Pius IX., H.P. Crimson-purple.

Souvenir de la Reine d'Angleterre, H.P. Bright rose; large and fine.

Triomphe de l'Exposition, H.P. Reddish-crimson.

Sir J. Paxton, B. Rose, shaded with crimson.

Aimée Vibert, N. Pure white.

TWELVE FIRST-RATE ROSES FOR POTS.

Blairii No. 2, H.C. Blush pink; very large.

Charles Lawson, H.C. Vivid rose, shaded; large.

Chenedole, H.C. Light vivid crimson; very large.

Coup d'Hebe, H.B. Rich deep pink.

Paul Perraz, H.B. Beautiful pale rose; very large.

Paul Ricaut, H.B. Bright rosy-crimson.

Auguste Mie, H.P. Light pink; large and full.

Duchess of Sutherland, H.P. Pale rose; blooms freely.

Général Jacqueminot, H.P. Brilliant red, velvety; large.

Géant des Batailles, H.P. Brilliant crimson, shaded with purple.

Louise Odier, H.P. Fine bright rose.

Souvenir d'un Ami, T. Salmon and rose, shaded; large.

TWELVE SUPERIOR ROSES FOR FORCING.

Anna Alexieff, H.P. Pretty rose colour; large.

Cardinal Patrizzi, H.P. Brilliant red, shaded.

Géant des Batailles, H.P. Brilliant crimson, shaded with purple.

Lady Stuart, H.P. Beautiful flesh colour; large.

Léon des Combats, H.P. Reddish-violet, often shaded with scarlet.

Louise Odier, H.P. Fine bright rose.

Madame Masson, H.P. Reddish-crimson, changing to violet, velvety; large.

Souvenir de Leveson Gower, H.P. Fine dark red, changing to ruby.

Bougère, T. Deep rosy bronze.

Madam William, T. Rich yellow; large.

Niphotos, T. Pale lemon, often snowy white.

Souvenir d'un Ami, T. Salmon and rose, shaded; large.

TWELVE SUPERIOR CLIMBING ROSES.

Blairii No. 2, H.C. Blush pink; very large.

Frederick II., H.C. Rich crimson-purple.

Général Jacqueminot, H.C. Purplish-crimson.

Madame Plantier, H.C. Pure white; free bloomer.

Vivid (Paul's), H.C. Rich vivid crimson; very showy.

Splendens, Ayr. White, edged with red; semi-double.

Félicité Perpétuelle, Ev. Creamy white; small and full.

Alexandrine Bachmeteff, H.P. Fine bright red.

Gloire de Rosamene, H.P. Brilliant carmine; large and semi-double.

Marquis Balbiano, B. Rose, tinged with silver.

Sir J. Paxton, B. Rose, shaded with crimson.

La Biche, N. White, tinged with flesh.—W. PAUL, *Nurseries*, Cheshunt.

VARIETIES.

ARGOL is a crude variety of cream of tartar which forms a crust in the interior of wine-vats and wine-bottles. Originally it exists in the juice of the Grape, and is soluble therein; but during the fermentation of the juice, and as it passes into wine, much alcohol is developed, which, remaining in the fermenting liquor, causes the precipitation of the argol; the latter being very sparingly soluble in an alcoholic liquid. Some wines when they are bottled are not fully ripe, and more alcohol being thereafter developed, a further precipitation of argol takes place as a crust in the bottles, and hence the meaning of the term *crusted port*. Argol is generally of a reddish tinge, obtained from the colour of the Grapes, but sometimes is of a greyish-white colour when it has been deposited during the fermentation of the juice of colourless Grapes. The red or white argol is denominated in commerce *crude tartar*, and its principal uses are in the preparation of cream of tartar and tartaric acid. The constituents of argol are bitartrate of potash (cream of tartar), tartrate of lime, with colouring and extractive matters. — (*Chambers's Encyclopædia*.)

RANUNCULUSES AND ANEMONES A HUNDRED YEARS AGO.—I have a great passion for old books, particularly works treating on natural history and travels. One of the most difficult duties I am ever called upon to perform is to pass a bookstall without stopping to see if any rare or curious book is exposed for sale. There is an unpretending shop in Frith Street, Soho, and another in the Strand, well known to all who take an interest in these subjects; where not only the shop, but the back-parlour, the passages, the very attics, are crowded with books on these subjects new and old. These places are a very paradise for me. One of my last acquisitions was an English translation (printed in London in 1741), of a French work published some years previously. It is entitled, "A Voyage into the Levant, Perform'd by Command of the late French King; illustrated with Full Descriptions and curious Copper-Plates of a Great Number of Uncommon Plants, Animals, &c. by M. Tournefort, Chief Botanist to the late French King." A page from it will, no doubt, be interesting to your readers. I preserve the orthography of the original. He says, speaking of Cara Mustapha:—"This Visier, to amuse his Master Mahomet IV. who extremely loved Hunting, Privacy, and Solitude, insensibly inspired him with a Fancy for Flowers; and understanding that the Ranunculuses were what he was most pleas'd with, he wrote to all the Bashaws throughout the Empire to send him Roots and Seeds of the very finest sorts they could lay Hands on. The Bashaws of Candia, Cyprus, Rhodes, Aleppo, Damascus outdid all the others in making their court to him. From thence came those admirable Species of Ranunculuses which are to be seen in the Gardens of Constantinople and Paris. The Seeds which were sent to the Visier, and those propagated by private men, produced vast varieties. The Ambassadors prided themselves in sending them to their respective

masters; in Europe they were rectify'd by Culture. M. Malaval contributed not a little thereto at Marseilles; he furnished France with 'em, and France all foreign Countries. There are Cantons in France very proper for the multiplication of certain Flowers. They raise in Normandy double Jonquils, and beautiful Anemonies; the Climate of Toulouze is extremely agreeable to these sorts of Flowers. Now I am on the Topick of Anemonies, there goes a Story of a certain Lawyer, to whom M. Bachelier had refus'd to communicate the Seed of these fine Anemonies; which when he could neither obtain for Friendship, nor Money, nor by way of Truck, a Fancy took him to go and visit M. Bachelier, with three or four of his Friends who were in the Plot; he order'd his Lacquey, who bore the Train of his Gown, to let it drop on some Pots that were in such an Alley; in these Pots were the Anemonies he wanted, and their Seed was ready to fall. They walk'd a good while, and talk'd about the Times; as soon as they were come to the very Spot of Ground, a merry Gentleman of the Company began a Story which engaged the whole Attention of M. Bachelier; and at the same time the Lacquey, who was no Fool, let fall his Master's Train; the Anemony-seeds having a downy Coat, stuck to the Gown, which the Boy soon gather'd up again, and the Company went forward. The Virtuoso took leave of M. Bachelier, and went his ways home, where he carefully pick'd off the Seeds which had stuck to his Robes; he sow'd 'em the same Day, and they produced very beautiful Flowers." Joseph de Tournefort (after whom the well-known genus of herbaceous plants, *Tournefortia*, was named) was one of the most famous botanists of his day, and the above anecdote shows that he also possessed a strain of quiet humour in his disposition. He was the author of a work called "Institutiones Rei Herbariæ," in which he laid down the groundwork of that natural arrangement of plants afterwards worked out by the no less famous Jussieu. Tournefort died, I believe, about the year 1718.—K.

TO CORRESPONDENTS.

BLOOMING ANEMONES AND RANUNCULUSES IN JUNE (W. Grove).—To flower Anemones and Ranunculuses in June and July, first prepare the ground now by throwing out the soil a foot or fifteen inches deep, and four feet wide. Then lay at the bottom a layer four or five inches thick of good rotten manure; fill in the soil again, leaving it as rough as possible. The soil should be a rather strong loam. About the middle of March choose a dry day, and fork over the soil of the bed, and draw drills two inches deep and six inches apart. Then plant the Anemones six inches apart in the rows, and the Ranunculuses four inches apart. Cover them up with fresh soil from the compost-yard and press it down with a rake, but do not rake the surface fine. When they come up so as to be fairly visible, tread the soil between the rows very firm, keep all weeds down; and, if the weather prove dry, give abundant and frequent waterings. The grand object is to obtain a free growth and healthy foliage till the flowers are fully expanded. In hot, sunny days, a shade with light canvass will be of great service. We must warn you, however, that the Ranunculus is the most difficult of all the florists' flowers to bloom profusely.

PRUNING PEACH AND NECTARINE TREES RECENTLY PLANTED (A. B.).—Cut back the shoots, which you say are all three or four feet long, one-third of their length.

GENERAL INDEX (The Glen).—We are anxious to meet your wishes and to publish an Index of our first twenty volumes for general convenience, but not less than 500 subscribers at 3s. each would enable us to publish one copious and satisfactory.

WORKS ON ENTOMOLOGY (F. H. Appleby).—Westwood's "Introduction to Entomology," and Kirby and Spence's "Entomology," will suit you.

VARIOUS (E. N.).—Italian Rye Grass would do on the ground intended for Mangold Wurtzel and Carrots. For the chance of their bearing in the autumn cut down the Raspberries now. Cut off all the laterals of the Vines close to the main branches; we do so annually. If every correspondent sent so many and such mixed questions, how many could we answer in a week? No one should send more than one or two questions the same week.

UNHEALTHY ORCHARD (J. Chinery).—The roots of the trees have probably descended into the gravel. To remedy this, open a wide trench near each, remove the earth from beneath it, and cut away the descending roots. A mixture of manure and marl forked, not spaded, into the surface, and an application of liquid manure two or three times in the summer, will keep the roots near the surface. Thin the branches where too crowded, remove those decayed, and paint over all with lime to destroy the moss.

CERASTIUM TOMENTOSUM—NIEREMBERGIA GRACILIS (R. A.).—The Cerastiums were considered as botanical weeds, like the now-far-famed *Spergulas*, when the *Cottage Gardeners' Dictionary* was published, and such were not admitted. We owe the Crystal Palace gardeners the Order of the Gardeners' Garter for the discovery of the *Cerastium tomentosum* for a front edge to beds, borders, and ribbons. It is a little, white, woolly-leaved plant with small white flowers, and comes from cuttings as easily as Willows any time of the year; old plants of it may also be divided into little bits at the end of the spring, and it is as hardy as a common Daisy. The *Perilla* was not introduced from China when the *Cottage Gardeners' Dictionary* came out. It is an annual plant with rough, black-purple leaves, and comes from seeds only. The seedlings to be reared like the little blue *Lobelias* in March and April. The *Nierembergia gracilis* is a very nice low-trailing plant with light-lilac flowers, and is about as hardy as the

Verbenas, and like them is propagated by cuttings, and also from seeds. It makes a very gay lasting bed, or an exceedingly pretty hang-down plant in a box outside the window; and we highly recommend the three kinds to your special notice, care, and patronage, with the fullest confidence that you, and all your friends, will be highly pleased with them.

POTS FOR CUTTINGS (An Amateur from Kent).—You would greatly oblige, and many others would do the same, if when reference is made to a previous answer the page and volume be stated. We make it a point to do our best for every inquirer; but that done, other occupations prevent us keeping the case in mind any longer; and were we to hunt up answers and replies to find what was said before, we should be obliged often to postpone a reply for another week, or perhaps more. With every wish to oblige each inquirer, we think it right frankly to state that our correspondents will be more quickly and better served, if in all cases of reference they lessen our trouble as much as possible. With this proviso we would say, that for cuttings in general nothing is better than four-inch, or 48-sized pots; small cuttings may be in a couple of rows round, and a vacancy in the centre for dropping water on. With proper drainage, however, and suitable attention, the mere size of the pot is of less consequence, and 48's are mentioned as being easily managed.

ROOT-PRUNING RED CURRANTS AND GOOSEBERRIES (Idem).—They may be root-pruned just as well as fruit trees, though generally a heavy crop will prevent much of that being necessary. Now, for instance, in the case of Gooseberries, unless the young wood is excessively strong we would let root-pruning alone for this year, would thin out the young shoots if very thick, leave them the full length, paint them with a paint made of equal parts clay, cowdung, soot, and lime, to keep the birds from the buds; and we shall be disappointed if the crop of fruit, if the season is at all propitious, do not take away a little of the extra luxuriance. We come to this conclusion chiefly because your Black Currants bore well. We expect you left the young wood chiefly as it grew, and that, on the other hand, you had shortened the Gooseberries over much. Gooseberries and Currants were, in many places, a scarce crop last season, owing to the frost destroying the young fruit; and, of course, there being little fruit to support, the wood was apt to be stronger than is usual. Gooseberries bear on short spurs, but never better than on well-ripened young wood left nearly, or entirely, its full length. Currants bear mostly on short natural spurs; but they will also bear on young wood not over strong, especially if the points were nipped out in July, and so thinned that sun and air would play upon them. If this were not done you must depend chiefly on the little spurs you will find below the base of your young shoots for fruit next season. Now, as to root-pruning, if these young shoots are as thick as your little finger, you may root-prune a little, and leave the shoots fully two thirds of their length. The check to growth will cause the buds along the shoots to cluster into little spurs for a following year. If the young shoots are not much stronger than a good-sized goose-quill, we would merely shorten them a little, and not root-prune at all.

PROTECTING WITHOUT GLASS—SMALL BOXES FOR VINES (—).—The best protection would be strong calico or sheeting on rollers, or small-meshed woollen netting on ditto—say in two or three pieces, to pull up and down at pleasure with pulleys. By such means you could retard as well as protect—a matter of much importance, as much fruit on such walls is injured, because, in bright sunny weather in early spring, the buds are expanded when there has not been heat enough to excite the roots into action. The boxes thirty-three inches by fifteen inches, and fifteen inches deep, will do for small Vines with a few bunches on each, if well surfaced every year and fed by rich manure waterings. After some years, however, it would benefit them to repot them early in autumn into fresh fibry material, with charcoal and bones as drainage, and the roots will be established before rest time in winter. You are quite right as to little soil being absolutely required; but fresh soil is always an advantage; and, of course, when you limit the range of the roots, you must feed them where they are. Fine Grapes will not be obtained from Vines living on air.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

DECEMBER 13th. NEWPORT (MONMOUTHSHIRE). Sec., Chas. H. Oliver, Commercial Street, Newport, Monmouthshire. Entries close Nov. 30th.
DECEMBER 28th and 29th. SHEFFIELD AND HALLAMSHIRE (Fancy Pigeons). Sec., Mr. Inman New, Sheffield. Entries close December 12th.
DECEMBER 28th and 29th. POULTON-LE-FYLDE. Sec., Mr. J. S. Butler.
JANUARY 4th and 5th, 1860. PRESTON AND NORTH LANCASHIRE. Sec., Henry P. Watson, Old Cock Yard, Preston. Entries close December 17th, 1859.
JANUARY 7th, 1860. BRADFORD. (Single Cock Show.) Secs., Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford.
JANUARY 11th, 1860. DEVIZES AND NORTH WILTS. Sec., Geo. Saunders Sainsbury, Rowde, Devizes. Entries close December 24th.
JANUARY 31st and FEBRUARY 1st and 2nd. CHESTERFIELD AND SCARSDALE. Hon. Secs., Mr. J. Charlesworth, and Mr. T. P. Wood, jun.
FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). Sec., Mr. W. Houghton. Entries close Jan. 14th.
N.B.—Secretaries will oblige us by sending early copies of their lists.

BIRMINGHAM POULTRY SHOW.

By dint of some exertion we were enabled last week to give our readers the prize-list of this great Show. We now give the commendations and our remarks on the classes and salient points. It may be truly called a great Show, and it is impossible to look at it without being carried in imagination to the outset of the Society. The little Show of pigs and poultry, open for a few hours only, has grown, in the unique building of Bingley Hall, into proportions that have rendered necessary a limit on the number of pens that may be shown by one exhibitor, and brings

annually together thousands of visitors of all classes. All these facts will fail to give any idea of the importance of this Exhibition to the town of Birmingham. Beds are scarcely to be had; hotels are overflowing; shops are crowded with customers; exhibitions of all kinds; anomalous animals, ventriloquists, circuses—everything that will attract visitors finds a harvest during the Show week. The Exhibition, then, deserves to be well supported by the town; and we were glad to be informed it was improving in this respect. More may, however, be done before it has received its deserts. But it must not be viewed as a mere Show; nor must it be thought its object is accomplished when it has brought together the 30,000 people who annually visit it. This is an advantage to the town; but far more important and more solid benefits accrue to the agriculturist, the amateur of poultry, and to that increasing class—the poultry eater. Before the formation of this and similar societies a fowl was a fowl; and if any one wished to begin with poultry, he had no means of ascertaining what breed would best suit his soil or meet his requirements. This difficulty is removed; every man can suit his fancy and his run. Another great advantage to purchasers is the adoption of new classes for single cocks, and for two hens or pullets. These were boons, as, previous to their institution, many who wanted a single bird only were compelled to buy a pen. It also enables many to exhibit who could not show a cock and three pullets or hens. The greatest stride is, however, made in the improvement in the different breeds, not only in weight and feather, but in strength of constitution. Years ago rouncy birds were common, and pen after pen was empty, bearing the ominous placard, "Birds removed, diseased." Such is now never seen. Again: it was thought some were naturally rouncy; but, thanks to the knowledge gained through shows like that of which we treat, it has been found the rounp was more frequently caused by the ignorance or mismanagement of the owner than by the weakness of the birds. Our last preliminary remarks will be on the increase of size. Those who have not given their attention to the subject have no idea of the extra amount of delicate food now produced without any increase of expenditure over that which formerly fed a number of worthless and mongrel birds.

We could say much more in praise of this great Show; but the unavoidable length of our comments on the classes compels us to recollect our limits.

Few persons know the difficulty of selecting a cock and three hens or pullets equal to competition. Many persons fancy when looking at a yard of beautiful fowls that all are alike; but when it is necessary to select the four and to criticise all closely, then it is found that the pre-eminently good are the exceptions. This remark is more especially true of the classes of which we first treat than of any others—the *Dorkings*. Their united numbers were 218. They call for additional prizes, and we heard they would be offered next year. All our anticipations as to weight were this year exceeded; several hens were shown that weighed more than 10 lbs. each. There were also fewer birds with gouty toes than usual. Captain Hornby's was a marvellous pen both for weight and symmetry. All the prize birds were wonderful. The *Chickens* deserve the same praise; but they were not so even as the adults. It can be easily imagined that extraordinary birds were necessary for success, and even some of the prize pens had one of the four occupants that damaged the other three. At the same time it may be said the worst would have been an easy winner a few years ago. Those calling for especial mention would be Mr. Wakefield's first-prize birds, Mrs. Hornby's hens, and Mr. Bromley's pullets. The latter gentleman's birds are exceedingly beautiful in colour.

The *Silver Greys* held their own in open competition. There were in these classes forty-three commendations.

If the progress lately made in *White Dorkings* can be continued they may also enter into open competition. They were very large, and also brought good entries. Mr. Robinson and the Rev. Mr. Hutton, together with Captain Beardmore, deserve separate mention.

Spanish came next. Still improving; no drooping cock's combs; no red-faced hens to make decisions easy, and to point out prize birds at a glance. There were 107 pens. There may, perhaps, be less alteration in these birds than in the preceding classes if we except the upright cock's combs, now general; but still there is an improved style in them generally, and it is satisfactory to see that, with few exceptions, the old strains maintain their pre-eminence. Miss Rake took second prize in three classes—no mean exploit. Mrs. Hall showed a remarkably good pen of adults; but the palm for pre-eminence must go to the *Chickens*

belonging to Messrs. Teebay and Rake; they were beautiful, and we thought the young cock in the cup pen belonging to the former gentleman one of the best and most stylish birds we ever saw.

In *Buff Cochins* Mr. Tomlinson seemed disposed to repeat the triumphs of last season; he took the Silver Cup, but it was a hard run with Mr. Stretch. The Rev. G. Gilbert took first for *Chickens*. We were much pleased with these classes, as these really useful birds are evidently being carefully bred.

Much interest is now excited in the *Grouse* and *Partridge* classes, from the fact that many exhibitors enter into sweepstakes which are decided by the awards. The birds shown were a great improvement on last year; and, we think, for size, purity, and symmetry, Mr. Stretch's cup pen is one of the best we ever saw. With increased age Mr. P. Cartwright's will, probably, be its equal. It was hard to give only high commendations to such pens as those sent by Mr. Punchard.

The *White Cochins* showed less improvement than any of the others.

Brahma Pootras brought the best display they have ever made, and afforded a great triumph to Mr. Teebay, who took three out of four prizes. Nine high commendations were well deserved in these classes, and there were sixteen pens of chickens shown. It is only fair to state that many were of a very high order.

Polands were not so numerous as they should be to compete for the prizes offered for them. We must, however, except the *Black with White Crests*, which were good in quality and numbers.

The *Golden* and *Silver* were also excellent, but not sufficiently numerous. Mrs. Pettat showed beautiful birds.

If we except Mr. Worrall's pen, the old *Golden-pencilled Hamburgs* were not so good as usual; but the *Chickens* made amends. They were a beautiful class, containing many perfect specimens.

We also thought very highly of the *Golden-spangled*, more especially the *Chickens*. The two first-prize pens in this class were unusually meritorious.

Strange to say, we have no praise to give to the *Silver-pencilled*. They were not up to the usual standard of the breed.

The *Silver-spangled* were very good, especially Miss Dixon's pen.

The *Hamburgh Hens and Pullets of any breed* afforded beautiful classes. In both, the first prizes were taken by *Golden-pencilled*, and nothing could exceed the beauty of the birds, or the perfect condition and feather in which they were shown.

Game fowls would deserve a separate report. Two hundred pens, seventy-one of which were named in the prize list. There were so many really perfect birds that we should have to reprint half the awards if we attempted to point them out. We thought the most remarkable improvement in any class was in the *Duck-wings*. We have never seen these beautiful birds in such feather for many years. Messrs. Woods, Baker, Dawson, and Archer must have separate mention. As usual, these classes were remarkable for the high condition of the birds they contained; and it is undeniable that they seem to touch a sympathetic chord in every one—all admire and like them. In this breed, the class for two hens and pullets was a beautiful one. It would be difficult to imagine anything more perfect than those shown by Messrs. Swift and Moss, which took the two first prizes. The *Brown-breasted Reds* were more numerous than usual.

Malays were better and in stronger force than we have ever seen at Birmingham. The birds shown by Messrs. Leighton and Brook leave nothing to desire.

The *Various Class* brought out a pen of our old acquaintances—the *Bakies* or *Dumpies*. They deservedly took first prize. There were also some pens of most excellent *Black Hamburgs*; also, some good *Serai-ta-ooks*.

Now we have to recommence in naming the several classes for *Single Cocks*, forming in themselves a great exhibition.

Sixty-eight *Dorkings*. Many birds of great merit and not one bad one. Twenty-four specially noticed. Dr. Hewson, Captain Hornby, and Mr. Drewry took the prizes, but many of the others deserved more than commendations. The prize bird was claimed at £15. Here, again, we may notice the unvarying good condition of the feet of these birds. No swelled toes or other defects.

The *Spanish Cocks* deserve equal commendation. They showed thirty-one pens, and it was hard to decide on the merits of those that deserved distinction. They were numerous.

The *Cochin-China Cocks* brought an array of goodly names, and birds that were worthy of the reputation that is attached to them.

The *Brahma Pootra* prize-birds were beautiful in shape and symmetry, and of unusual size.

The *Polish* call for no particular notice.

The *Golden-pencilled Hamburgs* formed one of the best of this division of the Show, and perfect birds were plentiful.

We may say the same of the *Golden-spangled*.

The *Silver-pencilled* showed some good specimens, but we can say nothing in praise of the *Spangled*.

The *Game* were perfect, and did not seem to feel the effect of the next class, which was the Sweepstakes. Everyone seemed to put forth his strength, and to do all that was possible for success. As it is no mean triumph to conquer here, we give the names as they come; convinced that, if any proof of the truth of what we have said were needed, they would afford it. First, the Hon. W. W. Vernon. Second, Mr. Joseph Hindson. Third, Captain Hornby.

The *Gold* and *Silver-laced Bantams* were better than we have seen them of late; but we look in vain for the real *Silver* we used to see. They were like milk, now they are cream.

The *Blacks* and *Whites* were good. The best pen in these classes was a *Black* one shown by Mr. W. Worrall. These birds come nearer to the old ones that used to be shown, inasmuch as the cock has sickle feathers. In these breeds they cannot be too long.

The *Game Bantams* were between fifty and sixty in number, and were very beautiful.

The first-prize pen of *Duckwings* was one of the best we have ever seen since the institution of this class. Sixteen pens figure in the prize list.

We cannot give a better idea of the merits of the *Geese* than by stating the weights. White, 63 lbs., 53 lbs., 48 lbs.; Grey and Mottled, 74 lbs., 64 lbs., 60 lbs. Mr. Fowler's pen must be reckoned among the marvels of poultry; and too much cannot be said in praise of that belonging to Mrs. Fergusson Blair, which, after travelling from Perthshire, could compete with the United Kingdom and take second prize. It was also a great exploit for Mr. Price to show three white birds 10 lbs. heavier than any others.

Twenty-eight pens of *Aylesburies*, all good. First prize, 30 lbs.; second, 32 lbs., but the drake's bill was not perfect; third, 28 lbs. Lots of birds over 6½ lbs. each were obliged to put up with high commendations.

Thirty-six pens of *Rouens*—the best show ever seen; and best among them Mr. Breavington's cup pen, weighing 27 lbs. The second and third weighed 26 lbs. each. In this class, again, all were shown according to rule.

In the next the requirements of Judges have been attended to; and the *Black Ducks* were little larger than Widgeons. They formed the best class ever seen of this beautiful and useful variety.

The new class for two Ducks of any kind was successful and pleasing. It produced Mandarins, Penguins, Brown and White Call, Crested Hoopbills, and others.

The *Turkeys* close the list. The first-prize birds, 68 lbs.; second, beautiful *Americans*; third, 52 lbs. Young birds, first, 46 lbs.; second, one of the most beautiful we ever saw; and third, 45 lbs.

Our review ends here. If any of our readers should think they deserved especial mention and have not had it, we can only refer them to the length of our report.

We have the pleasing task of thanking those who undertake and manage this great Exhibition for the treat they annually afford to all who are interested in the pursuit. Those who enjoy the sight, and admire the perfection of the arrangements which cause everything to work harmoniously, have little idea of the labour and responsibility they entail. While the management has no possibility of profit it has all the risk of loss. While, then, we congratulate them on their success, let us give them the only guerdon they seek in the satisfaction of knowing their efforts are gratefully appreciated by those for whom they are made.

DORKINGS (Coloured).—Highly Commended, Hon. Mrs. W. W. Vernon, Wolsley Hall, Rugeley; C. H. Wakefield, Malvern Wells, Worcestershire; G. Chadwin, Tollard Royal, Salisbury. *Hens.*—Highly Commended, Mrs. J. K. Fowler, Prebendal Farm, Aylesbury; the Rev. J. Hill, the Citidal, Hawkstone, Shrewsbury; H. Beal, Wexham, Slough; J. E. Wilson, Clifton Cottage, Claverley, near Bridgnorth; B. P. Williams, 38, Dean Street, Dublin; J. Whittington, Wootton Wawen, Henley-in-Arden; S. Burn, 1, East Terrace, Whitby, Yorkshire. Commended, W. W. Bartlam, Henley-in-Arden. *Chickens.*—Highly Commended, Lady S. Desvœux, Drakelow Hall, Burton-upon-Trent; Mrs. Bell, Woodhouse Lees, Canonbie, near Carlisle; Mrs. Cargey, Sandon Farm, Stone, Staffordshire; Miss A. Paterson, Knowsley Cottage, Prescott; Hon. W. W. Vernon, Wolsley Hall, Rugeley; N. F. Blair, Inchmartine, Inchture, N.B.; H. W. B. Berwick, Helmsley, near York; C. Fisher, Eaton Stud House, near Chester; W. Bromley, Smithfield, Birmingham. Commended, Lady E. Stanhope, Bretby Hall, near Burton-upon-Trent; Hon. Mrs. W. W. Vernon; Mrs. F. Blair; Mrs. Bell; Mrs. Cargey; Mrs. Hanbury, Lea-

mington, Hastings, Rugby; Rev. M. Amphlett, Church Lench Rectory, Evesham; Rev. C. R. Pettat, Aske Rectory, near Basingstoke; J. B. Hewson, Coton Hill, Stafford; G. Chadwin, Tollard Royal, Salisbury; W. W. Bartlam, Henley-in-Arden; J. Faulkner, Bretby Farm, near Burton-upon-Trent; J. Wells, Drakelow, near Burton-upon-Trent; J. C. Adames, Summer Row, Birmingham. *Pullets.*—Highly Commended, Lady S. Desvœux; Mrs. W. Bromley, Smithfield, Birmingham; R. W. Vernon, Wolsley Hall, Rugeley; W. Bromley. Commended, Mrs. Townsend, Stretton-en-le-Field, Ashby-de-la-Zouch; Miss E. Whittington, Preston Hill, Henley-in-Arden; Miss H. Whittington.

DORKINGS (White).—Highly Commended, Mrs. Peters, Moseley, near Birmingham; Miss M. Jackson, Vale House, near Garstang; H. Allsopp, Burton-upon-Trent; J. Jennens, the Friary, Hampstead, Birmingham. *Chickens.*—Highly Commended, Miss M. Jackson; Rev. H. F. Hutton, Spridlington, near Lincoln; J. Robinson, Vale House, near Garstang. Commended, Mrs. R. Hawksley, Southwell, Nottinghamshire; H. Allsopp; Capt. J. Beardmore, Uplands, near Fareham, Hampshire.

SPANISH.—Highly Commended, H. Beal, Wexham, Slough. *Hens.*—Highly Commended, Miss M. E. Fowler, Prebendal Farm, Aylesbury; J. H. Craigie, the Woodlands, Chigwell Rough, Essex. Commended, A. F. Watkin, Freedom Cottage, Walkley, near Sheffield. *Chickens.*—Highly Commended, J. R. Rodbard, Aldwick Court, Wrington, near Bristol; J. K. Fowler, Prebendal Farm, Aylesbury; W. R. Bull, Newport Pagnel, Buckinghamshire. Commended, J. H. Craigie; H. F. Wells, Aldbro' Hatch, Ilford, Essex; W. Moore, Hanley Castle, Upton-upon-Severn; R. Wright, 2, Porter's Place, Holloway, London. *Pullets.*—Highly Commended, J. R. Rodbard. Commended, Miss M. Fowler; J. Garlick, Hygeia Street, Everton, Liverpool.

COCHIN-CHINA (Cinnamon and Buff).—*Chickens.*—Highly Commended, Miss M. Fowler, Prebendal Farm, Aylesbury; G. Fell, Warrington; Master D. V. Allen, Inchmartine, Inchture, N.B.; H. Bates, Harborne Heath Cottage, Edgbaston, Birmingham. Commended, Mrs. H. Fookes, Whitechurch, Blandford, Dorsetshire; Miss V. W. Musgrove, West Tower, Aughton, Liverpool; Master H. W. Tomlinson, Balsall Heath Road, Birmingham; Master E. C. Stretch, Marsh Lane, Bootle, Liverpool; H. Loe, 39, High Street, Winchester.

COCHIN-CHINA (Brown and Partridge-feathered).—Highly Commended, Mrs. Cartwright, Oswestry; C. Punchard, Blunt's Hall, near Haverhill, Suffolk. Commended, J. Busst, jun., Walsall. *Chickens.*—Highly Commended, C. Punchard; T. Stretch, Marsh Lane, Bootle, Liverpool. Commended, Mrs. Cartwright; Miss F. M. Musgrove, West Tower, Aughton, near Liverpool; T. Bridges, Bridge Cottage, Croydon, Surrey.

COCHIN-CHINA (White).—Commended, Mrs. Titterton, Glenfield, King's Norton, near Birmingham. *Chickens.*—Commended, W. Dawson, Hopton Mirfield, Yorkshire.

BRAHMA POOTRA.—Highly Commended, G. Botham, Wexham Court, Slough. *Chickens.*—Highly Commended, Miss A. Fowler, Prebendal Farm, Aylesbury; Miss Harvey, Burlington Villa, Sheffield; G. Botham, Wexham Court, Slough; W. Harvey, Bank Street, Sheffield; C. H. Adames, Summer Row, Birmingham; Master D. V. Allen, Inchmartine, Inchture, N.B. Commended, Mrs. R. Teebay, Fulwood, Preston, Lancashire.

POLISH (Black with White Crests).—Highly Commended, J. Dixon, North Park, Bradford, Yorkshire. *Chickens.*—Commended, J. Dixon, North Park, Bradford, Yorkshire.

HAMBURGH (Golden-pencilled).—*Chickens.*—Highly Commended, G. Woodcock, Hincley; F. Hardy, Prince of Wales Inn, Bowling Old Lane, Bradford, Yorkshire; J. Martin, Mildenhall Mill, Claines, Worcester. Commended, J. Lowe, Whitmore House, near Birmingham; Messrs. Carter & Valiant, Poulton-le-Fylde, Lancashire; — Robbins, Aske, near Basingstoke; J. B. Chune, Lincoln Hill House, Coalbrookdale.

HAMBURGH (Golden-spangled).—*Chickens.*—Highly Commended, Miss A. M. Berwick, Helmsley, near York; W. T. Cox, Spondon, near Derby; H. Carter, Upperthong, near Holmfirth, Yorkshire. Commended, Mrs. Horsfall, Duffell Bank House, near Derby; J. B. Chune, Lincoln Hill House, Coalbrookdale; G. Fell, Warrington; Messrs. Parkinson & Lawrenson, Poulton-le-Fylde, Lancashire.

HAMBURGH (Silver-pencilled).—*Chickens.*—Highly Commended, E. Archer, Malvern. Commended, Rev. F. B. Pryor, Bennington Rectory, Stevenage, Hertfordshire; G. Griffiths, 7, St. Swithin Street, Worcester; D. Harding, Middlewich, Cheshire.

HAMBURGH (Silver-spangled).—*Chickens.*—Highly Commended, Mrs. Cargey, Sandon Farm, Stone, Staffordshire; Miss E. A. Crawford, Farnsfield, near Southwell, Nottinghamshire; D. Harding, Middlewich, Cheshire; R. Teebay, Fulwood, Preston, Lancashire. Commended, Miss S. A. Harvey, Burlington Villa, Sheffield; Miss E. Breavington, Bath Road, Hounslow, Middlesex; Capt. J. Beardmore, Uplands, near Fareham, Hampshire.

HAMBURGH PULLETS (any variety).—Highly Commended, Mrs. Chadwin, Tollard Royal, Salisbury; Mrs. Carter, Upperthong, near Holmfirth, Yorkshire; I. Davies, Bull Street, Harborne, near Birmingham.

GAME FOWL (White and Piles).—Highly commended, E. Farmer, Derby. Commended, C. Hopkins, Newton Regis, near Tamworth. *Chickens.*—Highly Commended, Col. Blackburne, Claremont House, Leamington; T. Whitaker, Melton Mowbray, Leicestershire. Commended, Miss A. Paterson, Knowsley Cottage, Prescott; Mrs. J. M. Baker, Hall End, Tamworth.

GAME (Black-breasted and other Reds).—Highly Commended, the Hon. W. W. Vernon, Wolsley Hall, Rugeley; R. Woods, Osberton, Worksop, Nottinghamshire; T. T. Burman, Lady Lane, Hockley Heath, near Birmingham; G. W. Moss, the Beach, Aigburth, near Liverpool. *Chickens.*—Highly Commended, Mrs. H. Sewell, Upton-upon-Severn, Worcester-shire; J. M. Baker, Hall End, Tamworth; Master T. C. Baker, Hall End, Tamworth; R. Woods, Osberton, Worksop, Nottinghamshire; Messrs. W. and N. Grimshaw, Pendle Forest, Burnley, Lancashire; J. T. Wilson, Redditch, Worcestershire; W. Rogers, Woodbridge, Suffolk. Commended, the Hon. W. W. Vernon, Wolsley Hall, Rugeley; E. Lister, Cassia Lodge, near Northwich; T. Evinson, Chesterfield; T. Whitaker, Melton Mowbray.

GAME (Blacks and Brassy-winged, except Greys).—Highly Commended, W. Ballard, Woodcote Lodge, Leamington; J. Harrison, Edgbaston Street, Birmingham. Commended, A. de Rothschild, Gunnersbury Park, Acton,

Middlesex; R. Greves, Inkford Brook, Alvechurch, Worcestershire. *Chickens*.—Highly Commended, R. Greves.

GAME (Duckwings and other Greys and Blues).—Highly Commended, T. Taylor, Burleigh Villa, near Wellington, Shropshire. Commended, G. Robinson, Thorpe Hall, Worksop, Nottinghamshire; F. Jordan, Eastburn, Driffild, Yorkshire. *Chickens*.—Commended, Col. W. Blackburn, Claremont House, Leamington; J. Bradwell, Southwell, Nottinghamshire; F. Hardy, Prince of Wales Inn, Bowling Old Lane, Bradford.

GAME HENS (of any variety).—Highly Commended, Miss E. A. Crawford, Farnsfield, near Southwell; Master T. C. Baker, Hall End, Tamworth.

GAME PULLETS (of any variety).—Highly Commended, Miss M. E. Cargey, Sandon Farm, Stone, Staffordshire; E. Lister, Cassia Lodge, near Northwich, Cheshire; H. Horton, Sansome Walk, Worcester. Commended, E. Archer, Malvern; W. Dable, Farnsfield, near Southwell, Nottinghamshire.

MALAY.—Highly Commended, A. G. Brooke, Cumberland Street, Woodbridge, Suffolk. Commended, C. Ballance, 5, Mount Terrace, Taunton; W. Manfield, jun., Dorchester. *Chickens*.—Highly Commended, J. J. Fox, Devizes; J. Rumsey, 182, High Street, Shadwell, London. Commended, C. Ballance.

ANY OTHER DISTINCT BREED.—First, the Hon. Miss de Flahault, Tullyallan Castle, Kincardine-on-Forth, N.B. First, G. McKenzie Kettle, Dallicott House, near Bridgnorth. First, S. H. Hyde, Ashton-under-Lyne. Second, Mrs. Robinson, Mansfield Woodhouse, Nottinghamshire. Second, H. M. Hitchcock, Dunchurch, Warwickshire. Second, L. Peters, Moseley, near Birmingham. Second, W. Dawson, Hopton Mirfield, Yorkshire.

CLASSES FOR SINGLE COCKS.

DORKING.—Highly Commended, Lady Sophia Desvœux, Drakelow Hall, near Burton-upon-Trent; the Right Hon. the Earl of Chesterfield, Bretby Hall, Burton-upon-Trent; the Right Hon. Lord Viscount Hill, Hawkstone, Shropshire; Mr. Townsend, Stretton-en-le-Field, Ashby-de-la-Zouch; H. Allsop, Burton-upon-Trent; J. Drewry, Newton Mount, near Burton-upon-Trent; W. Evans, Hurst House, Prescott, Lancashire; W. Seddon, Long St., Prescott; A. G. Brooke, Cumberland Street, Woodbridge, Suffolk; J. Wells, Drakelow, near Burton-upon-Trent. Commended, Miss A. Paterson, Knowsley Cottage, Prescott; Mrs. Bell, Woodhouselees, Canonbie, near Carlisle; Miss E. Jackson, Vale House, near Garstang, Lancashire; the Rev. M. Amphlett, Church Lench Rectory, near Evesham; J. E. Wilson, Clifton Cottage, Claverley, near Bridgnorth; J. Bell; W. W. Bartlam, Henley-in-Arden; J. H. Ivimy, Hinnington, Shiffnall, Shropshire.

SPANISH.—Highly Commended, Miss M. L. Rake, Brandon Hill, Bristol; J. H. Craigie, The Woodlands, Chigwell Rough, Essex; W. R. Bull, Newport Pagnell, Buckinghamshire; T. Robinson, The Gill, Ulverstone; W. Moore, Hanley Castle, Upton-upon-Severn; R. Wright, 2, Forter's Place, Holloway, London. Commended, Mrs. Stow, Bredon, near Tewkesbury.

COCHIN-CHINA.—Highly Commended, The Rev. George Gilbert, Claxton, near Norwich; E. Shaw, Plas-Wilmot, near Oswestry; J. W. Kelleway, Merston, Isle of Wight. Commended, E. Shaw; Master J. M. Cattell, Moseley, near Birmingham; H. Tomlinson, Balsall Heath Road, Birmingham; Master H. W. Tomlinson.

BRAHMA POOTRA.—Highly Commended, C. Dain, Southampton.

POLISH.—Commended, T. P. Edwards, Lyndhurst, Hampshire.

HAMBURGH (Golden-pencilled).—Highly Commended, W. C. Worrall, Rice House, near Liverpool; J. Robinson, Vale House, near Garstang, Lancashire; T. Worthington, Bladon Wood, near Burton-upon-Trent. Commended, Messrs. Carter & Valiant, Poulton-le-Fylde, Lancashire.

HAMBURGH (Golden-spangled).—Highly Commended, G. H. Chune, Lincoln Hill House, Coalbrookdale. Commended, Mrs. Horsfall, Duffield Bank House, near Derby.

HAMBURGH (Silver-pencilled).—Highly Commended, T. Keable, Rowdfield Farm, Devizes; G. Griffiths, 7, St. Swithin Street, Worcester.

GAME.—Highly Commended, Mrs. R. Swift, Southwell, Nottinghamshire; G. Robinson, Thorpe Hall, Worksop; J. Doncaster, Ollerton Hall, Nottinghamshire; H. Lowe, Comberford Lodge, near Tamworth; H. Horton, Sansome Walk, Worcester. Commended, C. L. Haines, Edgbaston, Birmingham.

SWEEPSTAKES FOR GAME COCKS.—Highly Commended, the Right Hon. Lord Berwick, Cronkhill, near Shrewsbury; Captain Hornby, Knowsley Cottage, Prescott, Lancashire; J. M. Baker, Hall End, Tamworth; the Hon. W. W. Vernon, Wolsley Hall, Rugeley; E. Archer, Malvern; J. Camm, Farnsfield, near Southwell, Nottinghamshire; R. Swift, Southwell, Nottinghamshire.

BANTAMS (Gold-laced).—Highly Commended, the Rev. G. F. Hodson, North Petherton, near Bridgwater; T. H. D. Bayly, Ickwell House, near Biggleswade, Bedfordshire. Commended, L. Peters, Moseley, near Birmingham.

BANTAMS (White).—Highly Commended, Mrs. Cartwright, Oswestry.

BANTAMS (Black).—Highly Commended, Master J. H. Cattell, Moseley, near Birmingham. Commended, J. Percivall, Client Villa, near Birmingham.

BANTAMS (Game).—Very Highly Commended, R. Swift, Southwell, Nottinghamshire. Highly Commended, Lady Steele, Mickleton Manor House, Gloucestershire; Mrs. R. Swift, Southwell, Nottinghamshire; Miss E. Rodbard, Aldwick Court, Wrington, near Bristol; T. T. Parker, Adlington Hall, Chorley, Lancashire; R. E. Ashton, Limefield, Bury, Lancashire; W. Seddon, Long Street, Prescott; R. Hawkesley, jun., Southwell, Nottinghamshire; H. P. Watson, Old Cock Yard, Preston; I. Thornton, High Street Heckmondwike, near Leeds; W. Evans, Hurst House, Prescott. Commended, T. T. Parker.

GESE (White).—Highly Commended, W. Winterton, Wolvey Villa, Hincley.

GESE (Grey and Mottled).—Highly Commended, the Hon. G. Howard, Charlton, Malmesbury; N. F. Blair, Inchmartine, Inchture; J. Smith, Ellenhall Park Farm, Staffordshire; W. Kershaw, Heywood, Manchester. Commended, Sir R. Peel, Bart., M.P., Drayton Manor, Tamworth.

DUCKS (White Aylesbury).—Highly Commended, Mrs. Seamons, Hart-

well, Aylesbury; W. G. K. Breavington, Hounslow, Middlesex; Mrs. Lingard, Hawkesley Hall, King's Norton, near Birmingham; E. Viggor, Over, Cheshire. Commended, Master J. Burn, 1, East Terrace, Whitby, Yorkshire; J. Price, Londonderry, Bedale, Yorkshire.

DUCKS (Rouen).—Highly Commended, Mrs. C. Browne, Withington, near Shrewsbury; Miss E. Breavington, Bath Road, Hounslow, Middlesex; C. Punchard, Blunt's Hall, Haverhill, Suffolk; F. Jordan, Eastbourne House, Driffild, Yorkshire. Commended, Mr. C. Browne; W. K. Breavington; W. Ballard, Woodcote Lodge, Leamington; Master J. K. H. Fowler, Prebendal Farm, Aylesbury; C. Hopkins, Newton Regis, near Tamworth.

DUCKS (Black East Indian).—Highly Commended, E. Stansfield, Manor Street, Bradford. Commended, Miss S. Perkins, the Cottage, Sutton Coldfield, near Birmingham; the Rev. F. B. Pryor, Bennington Rectory, Stevenage, Hertfordshire; W. Cooper, Impsley Farm, Henley-in-Arden.

DUCKS (any other variety).—Highly Commended, the Right Hon. Lord Berwick, Cronkhill, near Shrewsbury; E. H. France, Ham Hill House, near Worcester; J. Shackel, Blenheim House, Small Heath, near Birmingham; J. Chessum, Ickwell House, near Biggleswade, Bedfordshire.

TURKEYS.—Highly Commended, the Right Hon. Lord Viscount Hill, Hawkstone, Shrewsbury; Miss J. Milward, Newton St. Loe, Bath; Miss A. Fookes, Whitechurch, Blandford. *Poults*.—Highly Commended, the Hon. Mrs. Colville, Lullington, Burton-upon-Trent; Mrs. C. Browne, Withington, near Shrewsbury; Miss E. A. Fowler, Prebendal Farm, Aylesbury; Rev. H. G. Baily, Swindon, Wiltshire; W. Dolby, Syston Hall, near Grantham, Lincolnshire; J. Smith, Breeder Hills, Sedgebrooke, Grant-ham. Commended, J. Coxon, Freeford Farm, Lichfield; J. Grinnell, Ellesborough, Buckinghamshire.

JUDGES OF POULTRY.—The Rev. Robert Palleine, the Rectory, Kirby Wiske, near Thirsk; George James Andrews, Esq., Dorchester; Mr. John Baily, Mount Street, Grosvenor Square, London; Mr. Edward Hewitt, Eden Cottage, Sparkbrook, near Birmingham; Mr. Thomas Challoner, Whitwell, Chesterfield.

PIGEONS.

In the classes for Pigeons a different arrangement has been made this year in the prizes, which have been increased to sums of £2 and £1 respectively, an addition being made to the entrance money to cover the expenses. This change, while it has not affected the number of entries, has tended to great improvement in the quality of the birds exhibited. The Silver Plate for the best pens of Almond Tumblers, Carriers, and Powters, for which there were five competitors, was awarded to Mr. P. Eden, of Salford, for three very fine pens, though the black beak of the cock in the pen of Powters is considered a blemish by many breeders. The measurements of the Powters are:—Cock, length of body, 19 inches; length of leg, $6\frac{7}{8}$ inches. The hen measured in the body $18\frac{1}{2}$ inches; the leg, $6\frac{1}{4}$. For the Silver Plate for the best three pens of any other varieties than Almond Tumblers, Carriers, and Powters, there were six entries; the prize being awarded to Mr. Maddeford, of Staines, for three fine pens of Jacobins, Barbs, and Fantails. A different arrangement has been adopted this year in the offering of this prize, competitors being at liberty to show any variety with the exception of the three above mentioned; but the change does not appear to have been productive of so great an improvement either in the quality or quantity of the birds exhibited as might have been expected. The Carriers, as a class, were about the best, as a whole, that have ever been exhibited in Birmingham; both prizes and commendations were awarded to black birds. Mr. Eden, of Salford, took the first prize, and Mr. Crocker, of Plymouth, the second. Mr. Siddons, of Aston, has one pen highly commended, and another commended. The Almond Tumblers were a small class, and in point of merit were rather inferior. We have seen far better specimens than the first-prize pen, which were generally considered too large and coarse. Miss Cannan, of Bradford, received the first prize, and Mr. E. A. Lingard the second. There were only five pens of Balbs; and, to judge from the specimens, it would appear to be extremely difficult to breed perfect birds of this variety. Mr. Esquilant, of London, carried off the first prize; Mr. Edge, of Aston, the second; and Mr. T. H. Adkins, of the Lightwoods, and Mr. E. A. Lingard received commendations. Beards and Jacobins were rather above the average—the first prize for the former being awarded to a good pen of blues, the property of Mr. Millin, of Notting Hill; and that for Jacobins to Mr. Maddeford of Staines, for a very good pen. The first prize for Fantails was awarded to Mr. Ridpeth, of Rusholme, near Manchester, for a pair of white, of excellent carriage, though rather deficient of feather in the tail; the second prize being awarded to Mr. Millin for a pair of blacks. There were two novelties in this class—a pair of yellow, and a pair of white, with turned crowns, which, though sadly out of condition, had a wonderful carriage. It is most probable they are imported birds. Trumpeters show a very decided improvement during the past few years; birds which two years ago would have been certain

to have taken a prize being now scarcely noticed. The first prize was awarded to a pen of Mottled Trumpeters, the property of Mr. Mewburn, jun. The first prize for Powters or Croppers was awarded to Mr. Cannan, of Bradford, for a pair of blues; and the second to Mr. Ridpeth, for a pair of a bad mealy colour, which, are, however, large in size; the length of the cock in body being $18\frac{1}{2}$ inches, in leg $6\frac{3}{4}$ inches; while the hen is $18\frac{1}{2}$ inches in body, and $6\frac{3}{4}$ inches in leg. Owls were a very good class, the first prize being adjudged to Miss E. S. Adkins, of the Lightwoods; and the second to Mr. T. H. Adkins. Both these pens, we believe, were exhibited at Worcester a few weeks ago, and were unnoticed. There are fifteen entries of Nuns, in which class Mr. H. Child, jun., took the first prize with a very good pair. The second-prize pen were a pair of yellow-headed ones—a rather unusual occurrence. In Turbits, Mr. Maddeford took the first prize with a pair of yellow-shouldered birds, and Mr. Baily, jun., the second, with a pair of yellow, a self colour not much admired, breeders giving the preference to mixed colours. In Archangels, Mr. Dickin, of the Lozells, received the first prize and a high commendation. The first-prize pen was, in the opinion of many breeders, the best in colour, preference being given to the dark shade. The Barbs are an excellent class, and have much improved of late years. We believe the first-prize pen to be the same birds which received the same distinction last year, when they were claimed at the price of £10 10s. The second-prize birds were yellow, and we should think they are imported birds. In the class for Runts, we believe the heaviest pen lost the first prize in consequence of a defect in the leg of one of the birds. Miss E. S. Adkins, of the Lightwoods, took both prizes for Dragoons; the first with a pair of blue, and the second with white. The class for any other variety included the usual miscellaneous collection, the entries including Magpies, Silky Laced, Frillbacks, Spots, Tumblers, Antwerps, Priests, German Letz, Swabians and Meeves.—(*Midland Counties Herald*.)

The following are the awards of the Judges:—

SILVER PLATE FOR ALMOND TUMBLERS, CARRIERS, AND POWTERS.—P. Eden, Cross Lane, Salford. Very Highly Commended, Miss M. Cannan, Adolphus Street, Bradford, Yorkshire.

SILVER PLATE FOR ANY VARIETY EXCEPT ALMOND TUMBLERS, CARRIERS, AND POWTERS.—E. R. Maddeford, Staines, Middlesex. Commended, G. Goore, 3, Aigburth Vale, near Liverpool; J. Baily, jun., 113, Mount Street, London; P. H. Jones, High Street, Fulham, London.

CARRIERS.—First, P. Eden, Cross Lane, Salford. Second, G. Crocker, 23, Queen Street, Plymouth. Highly Commended, W. Siddons, Aston, Birmingham. Commended, W. Siddons.

ALMOND TUMBLERS.—First, Miss E. Cannan, Adolphus Street, Bradford, Yorkshire. Second, E. A. Lingard, Hawkesley Hall, King's Norton, near Birmingham. Highly Commended, Master E. Rake, Brandon Hill, Bristol.

BALDS.—First, F. Esquilant, 346, Oxford Street, London. Second, J. W. Edge, Aston New Town, Birmingham. Commended, T. H. Adkins, the Lightwoods, near Birmingham; E. A. Lingard, Hawkesley Hall, King's Norton, near Birmingham.

BEARDS.—First, S. Millin, 8, Silver Street, Notting Hill, London. Second, Master M. Rake, Brandon Hill, Bristol. Highly Commended, T. T. Parker, Adlington Hall, Chorley, Lancashire. Commended, J. W. Edge, Aston New Town, Birmingham.

JACOBS.—First, E. R. Maddeford, Staines, Middlesex. Second, J. Tailby, Hill Street, Birmingham. Commended, Master J. W. Cannan, Adolphus Street, Bradford, Yorkshire; Master M. Rake, Brandon Hill, Bristol.

FANTAILS.—First, T. Ridpeth, Rusholme, near Manchester. Second, S. Millin, 8, Silver Street, Notting Hill, London. Commended, Mrs. T. T. Parker, Adlington Hall, Chorley, Lancashire.

TRUMPETERS.—First and Second, F. Mewburn, jun., Larchfield, near Darlington. Highly Commended, P. H. Jones, High Street, Fulham, London. Commended, Master J. W. Cannan, Adolphus Street, Bradford, Yorkshire.

POWTERS OR CROPPERS.—First, Master J. W. Cannan, Adolphus Street, Bradford, Yorkshire. Second, T. Ridpeth, Rusholme, near Manchester. Very Highly Commended, H. Child, jun., Sherbourne Road, Birmingham. Highly Commended, J. Tailby, Hill Street, Birmingham. Commended, Mrs. E. A. Lingard, Hawkesley Hall, King's Norton. (A very good class.)

MOTTLED TUMBLERS.—First, S. Millin, 8, Silver Street, Notting Hill, London. Second, Mrs. E. A. Lingard, Hawkesley Hall, King's Norton. Highly Commended, F. Esquilant, 346, Oxford Street, London.

OWLS.—First, Miss E. S. Adkins, the Lightwoods, near Birmingham. Second, T. H. Adkins. Commended, H. Morris, Perry Vale, Forest Hill, Kent.

NUNS.—First, H. Child, jun., Sherborne Road, Birmingham. Second, J. W. Edge, Aston New Town, Birmingham. Commended, Mrs. T. T. Parker, Adlington Hall, Chorley, Lancashire; (Hen three feathers deficient in flight) Master E. Rake, Brandon Hill, Bristol.

TURBITS.—First, E. R. Maddeford, Staines, Middlesex. Second, Mrs. J. Baily, 113, Mount Street, London. Commended, T. H. Adkins, the Lightwoods, near Birmingham.

ARCHANGELS.—First, R. S. Dickin, Lozells, near Birmingham. Second, F. Mewburn, jun., Larchfield, near Darlington. Highly Commended, R. S. Dickin.

BARBS.—First and Second, Master E. Rake, Brandon Hill, Bristol.

RUNTS.—First and Second, C. Baker, Pheasantry, Beaufort Street, Chelsea.

DRAGOONS.—First and Second, Miss E. S. Adkins, the Lightwoods, near Birmingham. Commended, W. H. Goore, jun., 3, Aigburth Vale, near Liverpool.

ANY OTHER NEW OR DISTINCT VARIETY.—First, J. W. Edge, Aston New Town, Birmingham. Second, J. Machin, Trentham, Staffordshire. Highly Commended, Miss E. Cannan, Adolphus Street, Bradford, Yorkshire. Commended, T. Burbidge, Bristol Road, Edgbaston; J. Tailby, Hill Street, Birmingham.

JUDGES OF PIGEONS.—Mr. Harrison Weir, Lyndhurst Road, Peckham, London; Mr. T. J. Cottle, Pulteney Villa, Cheltenham.

DEVIZES AND NORTH WILTS POULTRY SHOW.

WE are glad, now that the Wilts Agricultural Society is defunct, to see the announcement of this Exhibition. Another year we would suggest a better classification of the Polands and Bantams than that in its present prize list; but we are glad to see separate Sweepstakes for Single Cocks of every breed, and the prizes, varying from £2 to 10s., are sufficiently liberal.

We hope the following excellent rule will be fully carried out, and the Secretary informs us that it will be rigidly:—

"12. The Committee hold themselves personally responsible for the payment of the prizes, which will be paid to those attending the Show the day it is held; to others the cash will be forwarded by post immediately on its close."

GAME AND HAMBURGH COCK SHOW.

STEEL BANK, SHEFFIELD.

THERE were some very good Game Cocks. In Hamburg Cocks (Gold or Silver-pencilled), there were none calling for especial mention. There was a very good Gold-spangled bird, but being out of condition he only took second place. In the class for Red-cap Cocks there were some very meritorious birds, the prize birds being perfect. The following is a list of the awards:—

GAME COCKS.—First, G. Hellewell, Walkley, near Sheffield. Second, J. Martin, Claines, near Worcester.

HAMBURGH COCKS (Gold or Silver-pencilled).—First, C. Hayes, Walkley, near Sheffield. Second, F. Hardy, Bradford.

HAMBURGH COCKS (Gold or Silver-spangled).—First, C. Hayes, Walkley, near Sheffield. Second, E. Needham, Ridgeway, near Sheffield.

RED-CAP COCKS.—First, J. Battison, Dee Street, Sheffield. Second, B. Oats, Owlerton, near Sheffield.

The Judges were Mr. Smith and Mr. Wragg, both of Sheffield.

DOUBLE EGGS.—During my absence from home in the month of September last, one of my hens (crossed, I think, between Dorking and Spanish) laid three eggs of an astonishing size and character; the shell of each egg was broken or cracked in the process of laying, and on removing this, a yolk and white were found as usual, and in the centre of them a second egg of the common size, with yolk, white, and shell quite perfect. I think such an instance of double eggs has been recorded in the pages of your Journal; but as I never had one occur in my own poultry-yard before, I send an account of it for the information of your readers. I regret that I cannot furnish the exact weight and dimensions of the eggs, but as only the shell of one has been preserved, I can do no more than describe them. — SIBERT-ON-THE-WOLD, Kent.

OUR LETTER BOX.

BIRMINGHAM PIGEON SHOW.—We have received several criticisms on the awards, which we will insert next week.

SPANISH FOWLS (A. B. C.).—The crooked breast of the hen will be fatal to her as a bird for exhibition. The cock stopping in his crowing, and gaping, has the gapes, caused by the irritation of small worms in the windpipe. There is no known cure. We have often said we should like to know the result of a little sweet oil forced down the windpipe by a syringe.

WHITE SPANISH (An Old Subscriber).—It is difficult to say whether White Spanish fowls are a distinct race or not. We are disposed to doubt it, because, in our experience, we have had hens moult nearly white, breed black chickens, and return to their original colour the next year. Formerly when this breed was largely imported from Holland, we used to see more of them. They were sent in regular pens of cocks and hens, perfectly white. They are said to be as good layers as the others, and we do not see why they should not be so. We know of none for sale at present; but as we have seen them at shows, we have no doubt an advertisement in our columns would produce some.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	DECEMBER 13—19, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock afterSun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
13	Tu	Cytisus.	29.902—29.783	43—35	S.	—	VIII	49 af 3	54 7	19	5 44	347
14	W	EMBER WEEK.	30.164—30.001	35—33	W.	.01	1 8	49 3	23 9	20	5 16	348
15	Th	Ephe ^{ris} .	30.230—30.035	40—34	N.E.	.01	2 8	49 3	48 10	21	4 47	349
16	F	Erica vestita.	30.102—30.066	38—34	S.	—	3 8	49 3	morn.	22	4 18	350
17	S	Erica Patersonii.	30.025—29.783	42—38	S.E.	—	3 8	49 3	10 0	23	3 48	351
18	SUN	4 SUNDAY IN ADVENT.	29.618—29.457	49—34	S.	.62	4 8	49 3	32 1	24	3 19	352
19	M	Erica exsurgens.	29.453—29.440	48—29	S.W.	.09	5 8	50 3	55 2	25	2 40	353

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 45.8° and 34.5°, respectively. The greatest heat, 61°, occurred on the 13th, in 1812; and the lowest cold, 7°, on the 16th, in 1853. During the period 117 days were fine, and on 107 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

As many of the hard-wooded plants are impatient of fire heat and a confined atmosphere, it is advisable to use no more artificial heat than is absolutely necessary. The drying effects of fire heat must be counteracted by a supply of moisture, the moisture becomes condensed on the glass and falls in drips, that are apt to spoil the beauty of the flowers, and to injure the foliage of the plants. The best correction for such unfavourable results, is to be found in keeping the temperature as low as may be consistent with the safety of the plants, and in withholding moisture as much as possible whenever the glass is affected by frost. See that the young stock of Heliotropes, Scarlet Geraniums, Persian Cyclamens, and other such flowers, that are grown especially for winter, are accommodated with a light, airy situation, and receive regular attention as regards watering. Avoid watering the Pelargoniums until they are thoroughly dry, and keep down insects.

STOVE AND ORCHID-HOUSE.

The plants in the stove should be kept as quiet as possible, and only just sufficient water given to keep them from flagging, to be accompanied with a moderately low temperature; about 60° by day, and 50° by night, the object being to prevent them from growing before the spring of the year. Admit air when it can be done safely, but do not expose the plants to cold, frosty winds at any time. As our collections of Orchids are from countries with different seasons of growth, and various kinds of temperature and climate, it is difficult to cultivate in one house a miscellaneous collection of them so satisfactorily as where there are two divisions, the one commanding a higher temperature, with more moisture, than the other. Where there is no such division, advantage may be taken of a forcing pit, or other such house, to which any of them now in a growing state may be removed, and thus their growth may be promoted without injury to the general collection. For the general collection a drier atmosphere and lower temperature are now desirable, as no plants are more benefited by a season of rest than Orchids.

FORCING-HOUSES.

All VINES, PEACHES, and FIGS in POTS, or TUBS, to be secured from frost and wet. A fermenting body in a forcing vinery is an excellent plunging medium for such of these as are wanted very early. Keep up a succession of Asparagus, French Beans, Rhubarb, Sea-kale, &c., according to the demand.

CUCUMBERS.—Thin out the fruit occasionally, more especially if too many appear at one time. If any plants had been bearing some time, and now appear nearly exhausted, they may be rallied into vigour again by a judicious pruning and thinning, and by the application of a top dressing of leaf mould or other such rich, light soil, and of liquid manure occasionally.

PEACHES.—A moist heat, arising from dung or leaves is as beneficial to Peach trees as to Vines before they break, but as it can but rarely be made use of, in consequence of the difference in the structure of the interior, moisture must be supplied by other means, such as syringing and sprinkling the flues, or pipes, when warm. A few trees, in pots, are useful for early forcing, as they can be easily plunged in a pit or any other convenient place where a mild regular bottom heat can be supplied. The trees for this purpose must have been grown and established for some time in pots. The advertising columns of THE COTTAGE GARDENER give information where they are to be procured.

PINES.—A regular heat, both bottom and atmospheric, to be kept up to carry the general stock of fruiting plants safely through the winter. A high and close temperature to be avoided in the management of the succession plants.

STRAWBERRIES.—If ripe fruit is wanted very early, some of the strongest plants, if treated as advised, should now be selected, and placed in a pit where they can get a gentle bottom heat, or on the back or front shelf of a vinery or Peach-house, just started for forcing, to be placed near the glass with a free admission of air on fine days.

VINES.—It is advisable, when beginning to force, to commence with a low temperature—say, 55° by day and 50° by night, to be increased 5° more until they break, when it may be raised to 60° at night, and 65° in the day, or thereabouts, allowing a rise of a few degrees by sun heat. The Vines to be syringed evening and morning until they break, and the walls and floor kept damp. If the stems of the Vines are near the flues, or pipes, wrap moss over that part, and keep it constantly moist. The Vines in the late houses to be pruned, the loose bark to be removed, and the scale, if visible, to be banished by an application of the Gishurst Compound, or by the more ancient composition of sulphur, soft soap, and tobacco water. Where the fruit is ripe, a little fire heat will be necessary in frosty weather to prevent the vapour that adheres to the glass on the inside from being frozen, for the moisture on thawing is apt to drop upon the bunches causing injury to the bloom, and decay to the berries.

WILLIAM KEANE.

HOW THINGS ARE GOING ON AT THE HORTICULTURAL SOCIETY AND COVENT GARDEN MARKET.

ALTHOUGH the “Monthly Proceedings,” or journal of the Society, has been issued since the resolution on that subject was passed at the last annual gathering, Fellows of the Society away from London seem as much off the scent as ever as to the very “Proceedings” of the Society. One cannot face any two or more of the body at kirk or market without a whole budget of questions and surmises, which are sure to end in this way,—“Can’t you run up, and let us know all about it?”

Well, at last I did run up, and do know all about it. But without making a clean breast of it, I must say that

on the other side of that line, it will be no more "than what might have been expected from the first." Chiswick Garden is to be kept on—the great experiment of proving the Grapes at last is, therefore, not yet hopeless. A good deal has been done, both at Chiswick and at Kensington Gore, in the way of preparing trees and shrubs for removal. Mr. Nesfield is to draw the plans for the alteration of the grounds at Kensington Gore; and if he be not more successful in the arrangement of flower-beds there than he was in the terrace garden at Kew, the new Horticultural will be out of the style and fashion as much as the old lady ever was down at Chiswick—with this bite to the bargain, that the Doctor will not be in for it this time. Mr. Eyles, from the Crystal Palace, will follow, and make good the plans of a less able flower gardener at any rate.

When the Society first came to the dogs in 1830, it was said and believed on all hands that, "whatever may be said in palliation of Mr. Sabine's conduct, [he was secretary,] nothing can be more clear than this—that he is the cause of the present state of things in the Society. He it is, and he alone, who, by a system of concealment and monopoly of power, has brought the Society to the brink of ruin."

The lesson to be learned from this is obvious enough. Let no one have a monopoly of power again, and no set of Councilmen a secret monopoly. But the present constitution of the Society is radically wrong, and rather encourages a spirit of monopoly—in the Council, at least, having the power of electing themselves. I shall not live to see it, but I shall put it on record that, with this power in the hands of the Council, it is inevitable that the Royal Commissioners—the present ground-landlords of the Horticultural Society—will, or may, ultimately monopolise the powers and functions of the Horticultural itself. But whether that will turn out for better or for worse for the interests of gardening no one can tell.

They (the Council) seem now to be going on remarkably well. They are not so imperious as not to take a leaf out of abler hands than their own. I have told already how their fruit shows were supported by the pillars of the British Pomological Society. I also went to see myself: and running down hill before that spirited body at or about Hanover Square in the matter of out-door Grapes, and being at the rooms of the Horticultural the other day promiscuously, I was invited to sit down with the Fruit Judges in full committee, and to help them in giving their awards. I was both amused and very much pleased to find the whole proceeding was the very reverse of what the old Society considered the best way of teaching pomology, and just after the very model I had seen with the British Pomological at the Hanover Square Rooms.

I am satisfied nothing was ever done better in my time than the judging of the fruit is now done by the new Horticultural. A dozen or more sat round the table, with a Chairman, President, clerk of the course, and press-reporter. All the fruit having been previously arranged for competition under so many headings and letters, the Chairman called for such and such kinds of fruit as they stood on the list of the clerk of the course, beginning with those for which prizes were specially offered, and ending with odds and ends, and duplicates. From 1830 and onwards, for some years, I conducted an experimental fruit garden in Herefordshire, where some of the best judges of fruit then in the land used to dine and meet for the purpose of judging new fruits and comparing old kinds; but two only of their number are known in pomology—Mr. Knight, of Downton Castle, and Mr. Williams, of Pitmaston. No fruit in the garden was exempt from strict criticism; and when more than one kind of fruit was tasted at one sitting, as Pine Apples and Grapes, or Pears and Melons,

or Apples and Nuts, or Gooseberries; it was considered essential to the issue of a just verdict to swallow a glass of sour cider between tasting the two kinds of fruit, to wash off the flavour of one kind from the palate for fear it should prejudice that of the next on the list.

When two particular fruits were equal in the balance, so that one could hardly say which was the better of the two, the decision was left open till next morning, till they were tried on an empty stomach; and the *ne plus* opinion of those eminent men on the judgment of fruit in summer was, that it should be gathered in the cool of the evening, after the sun was off it, and before the dew came on, and be kept in the fruit-room that night, to be tasted the first thing before breakfast—the hour at which the palate, they said, was most sensitive and most to be relied on of the twenty-four.

In practice I had also known, long since, that the luxuries of the table often interfere with a reliable judgment on the merits of dessert: I therefore excused myself at that meeting from entering on the merits of some of our best dessert Apples immediately after settling those about the best dessert Pears of the season. And I would put it fairly to the judgment of the Council of the Horticultural Society, whether they think it just and reasonable, for the interest of their friends and exhibitors, to expect infallibility from their Fruit Committee in the absence of some such precaution as the Herefordshire Judges thought indispensable in their private capacity.

The room was well stocked with fine-looking fruit, particularly Apples and Pears; but the influence of the last season was very apparent in the flesh and flavour of every description of fruit. No description of out-door fruit is up to the average mark after that hot, burning summer, except in the outward appearance; but the samples were generally very fine-looking, and some of the Pears particularly so. Their weight and sizes were also remarkable for such a season. The *Uvedale's St. Germain's* were over 3 lbs. each, from the county of Wicklow, in Ireland; and 2 lbs. 6 ozs. from the neighbourhood of Elgin, in Morayshire, beyond the Grampians. The former were from Sir George Hodson, Bart., Hollybrook Bray, county Wicklow, and the other from Sir J. Archibald Dunbar, Bart., Duffus House, near Elgin, or by Elgin, as they say in the north; but we shall have them all in the detailed reports of that meeting.

The Judges were the best in the land, consisting of private gentlemen, nurserymen, and private gardeners; the merits and histories of each kind were discussed as they passed under review; the peculiarities of soil, climate, situation, and aspect, were provided in the filled-up papers by the exhibitors, and elicited a sound practical discussion; and the final judgment was by a show of hands—the majority, as usual, carrying the prizes. The whole arrangement was so much on the new model introduced by the British Pomological Society, that I could see no reason now why they and the Horticultural should not put up their horses at the same inn, and go in for an amalgamation to the sure and certain advantage of both parties, and of the public at large. The battle is already fought and won, the victory is on the side of the public, and I would dine with the Doctor himself to-morrow. Yes, I would even now drink wine with those very foolish men on the Council who sold our library; and would, in good will and charity, absolve them from the consequences of that part of their self-imposed task, and immediately constitute another order of minds, to beg the world over for another such a library for the new blood and bone at Kensington Gore.

Without a thorough good library there, what will all the thousands and the plans turn out better than royal tea-gardens after all? or what instruction better, or more suitable, than the elementary knowledge for cutting ham-sandwiches? A library we must have; but first see how many and what books we can collect together by the goodwill and donations of the Fellows. I shall give twenty

or thirty volumes from my shelves; and if the plan be taken up in the right spirit, I would set the example by bequeathing all my gardening books at my death to the library at Kensington Gore. I have been in earnest all along about the library, and I could tell and explain why so few have consulted the old one since 1830. But at Kensington Gore we shall have rooms entirely devoted to books and study—not the working-office of the Society and Secretary's sitting-room, as in Regent Street; and after all this grub and caterpillar state, we shall all meet there as soft as moths and as gay as butterflies.

One could hardly be in the vicinity of Covent Garden Market at this season of the year and not call in and see how things go there. Well, it pulls down one's feathers to see so much improvement in the forcing department of flowers year by year, for this year in particular; for they have had the early Tulips, the single and double *Van Thol*, in small 48-pots, and five or six in each pot, every one of which is as regularly and as timely bloomed as the rest, and all out by the first day in December, instead of on Christmas or New Year's Day, as of old; white old *Cyclamen Persicums* by the dozens in full bloom; single Chinese Primroses, as large and as high-coloured as were ever seen in Bath or Ipswich in their palmy days, and a much greater sight for all country gardeners. Just answer this question to your own conscience, if you were ever initiated to the freemasonry of gardening, as I was, against my will. Did you believe in the art of growing the free *Poinsettia pulcherrima* like the single truss dwarf-flowered Hydrangeas of the present age—that is, to have it in bloom, at this season in 48-sized pots, and from four to six inches high, the leaves all green, and down to the tops of the pots, and the heads of bloom as large and as brilliant as you had seen them on seven-foot stems? I counted a score of such plants in that very condition on one stall in Covent Garden Market that day; but, whether they were from France or from Isleworth, they were a lesson not to be forgotten.

Just suppose a ribbon-line of *Flower of the Day*, ten inches high, in midwinter, and three hundred feet long, at Kensington Gore, and two lines of this *Poinsettia* in front of it. The one to be of plants eight inches high, and the other six inches in height—the two making one band a foot wide of the brightest crimson you ever saw, and would they not be worth the journey up to see them too? The next question is, But who could make them? and the next, How did he manage the dwarfing process? Then a discussion on those nosegays, where another improvement is seen in the make and cut of the guard-papers under them.

And, verily, Covent Garden seems to feel already the impulse of the new Horticultural Society. All the flowers are on wires, the worse luck; but there is a noted improvement in the make of the nosegays since I was last there, but no alteration on the old shapes. The best telling are the large white Camellia on the top and the seven or eight ribs of blue Violets, with the same number of white ribs, or French-white ribs, of the flowers of white and French-white Chinese Primroses curving down from under the edges of the white Camellia to the bottom or rim of the nosegay, then a row all round of green, and finished with fancy-cut guard-paper. A few cut scarlet Geraniums and an immense number of orange-scarlet flowers of *Tropæolum Lobbianum* are the next best telling in the market, after the Camellias and the dwarf Poinsettias. I did not see a forced or a retarded Rose in the market; but there were a far better display and assortments of everlasting flowers than I had ever seen before. Really some nosegays of them, which were surprisingly cheap (6d., 9d., and 1s. each), were well worth one's while to buy and "make up" with them till natural flowers come in again, without paying too high for them. Flowers must be dearer this winter than usual, as the early frost killed so many of what would

help on till Christmas. That may account for the extent of everlasting flowers. I lost the flowers of all my Pompones by the frost; but there was no lack of them in the Market. The large kinds do not seem to be favourite cut-flowers there, for I never saw more than two or three sorts of them; but of Pompones there is a large supply.

D. BEATON.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(Continued from page 124.)

CROPS OF THE FOURTH SEASON—Continued.

POTATOES.—So much having been written of late years regarding this important but uncertain crop, little can be added to what has already been said on the matter. One thing, however, has always been urged in the pages of THE COTTAGE GARDENER—to plant only the early kinds, and to plant these as early in the season as can be done. A strong dusting with quicklime where there is reason to suspect the disease is making its appearance; and, if damp weather follow, scattering a little guano amongst them, will stimulate the plant to resist the disease and out-grow it. But I am far from asserting this as a cure; on the contrary, a perfect remedy or preventive has not yet been discovered; but any means that will lessen the evil ought to be tried. Caustic substances, like soot, are also useful. But the great thing is to have the plants in such a state of forwardness as to be but little affected with it when it comes; and as soon as they are ready to be taken up do so immediately. Not that their own preservation depends on this (although it sometimes does), but that the ground will be wanted for another crop: it must, therefore, be dug at once, and sown with Turnips, the same as that recommended after the Wheat; which Turnip crop will require hoeing and thinning at the proper time.

LUCERN.—This crop, which had been sown the preceding autumn, will require hoeing in April; and towards the usual hay-time it may be cut as green food. In a general way Lucern likes a stiff soil, and is often very productive—two or three crops being cut each year. It ought not, however, to be cut too late in the autumn; neither ought it to be fed off very close then, otherwise the crown of the plant is injured. A good deep cultivation suits Lucern, and a top dressing of rather rough dung in the winter is useful for preserving the plant: the roughest part of the dung may be raked off in the spring, and carried into the yard again. This crop we purpose calling permanent for a year or two, unless its appearance betokens its wearing out: in that case let it be at once dug up, and some other crop planted in its place, as will be shown hereafter.

AUTUMN OF THE FOURTH YEAR.

The crops requiring attention at this season will be the Swede and White Turnip; there being 40 rods of the one and 60 rods of the other. The Swedes may be gathered, their tops and roots cut off, and housed or stored away somewhere. They keep very well when piled up in a steep ridge, covered over with straw, and about six inches of earth over that, having tufts of straw rising above the earth every six feet or so apart, to act as ventilators. Generally speaking, Swede Turnips do not affect the cow's milk, especially after they have started to grow a little; and, being cut into slices, cattle are invariably fond of them. White Turnips are, however, more liable to give a bad taste to the milk, and must not be given to the cow when in milk; but as a green crop is a necessary change I have advised it here, and would recommend the owner to make terms with some neighbouring farmer or cattle-dealer to eat them off with sheep, the farmer supplying the hurdles. If an arrangement could be made for him to supply his sheep with

oilcake while they were on the ground, so much the better; the manure they would leave would be all the richer. In the neighbourhood of a town there will be always a sale for Turnips; and after a hard winter their tops are much sought after as greens for table. At all events, I should not advise the cow to have any of them. The Grass and Clover may be treated the same as recommended for former years. The Lucern has been already treated of, and the Turnip as above: the cropping in the autumn of the fourth year will be thus:—

- 60 rods of Grass same as the last two years.
- 80 „ Clover which has been cut the past summer.
- 20 „ Lucern which has also been cut as above.
- 60 „ White Turnips where the Wheat and Potatoes of the last year had been.
- 40 „ Swede Turnips where the Beans had been.

It will be seen that the last two plots are those to be dealt with the ensuing season—the Grass, Clover, and Lucern standing over.

Our views, still looking towards the future, must now take another turn. Clover, as a green crop, must not be repeated too often; and all the tillage-ground having had that crop, or now bearing it, green food of a more permanent character must be looked for. Supposing the cultivation to have been good and liberal as regards the manure used, the ground will be in good order for laying down to permanent Grass. We shall, therefore, begin our next season's operations with that view.

CROPS OF THE FIFTH SEASON.

There being 100 rods of ground which had previously had Turnips on, it would be well to have a portion of this in Potatoes; another plot Carrots of the *White Belgian* kind; Mangold Wurtzel in a third; and Barley, followed by Grass seeds, in the remainder; besides which the cultivator may be wishful of trying some newly-introduced plant as fodder—the *Holcus Saccharatus*, for instance. The proportions will, therefore, stand thus at the commencement of the fifth summer—omitting the permanent crops so often mentioned, and confining our directions to that portion of the ground available for cropping, as stated above, which we propose to be thus:—

- 20 rods of Potatoes where Wheat had been previous season.
- 10 „ Mangold Wurtzel where Wheat had been previous season.
- 10 „ *Holcus Saccharatus* where Wheat had been previous season.
- 20 „ White Carrots where the Potatoes had previously been.
- 40 „ Barley where the Beans had been previous season.

It will be borne in mind that the whole of the above had borne a Turnip crop in the autumn of the preceding season. It must also be remembered that the Clover, not mentioned in the above, will most likely be exhausted by the end of the present season. The present year's cropping must, therefore, be directed with the view to have as large a space of green crop the ensuing season as possible. For this reason there is a larger breadth of Barley to be followed by Grass seeds; and some of the other crops may also be followed by the same crop in the autumn, as will be shown.

POTATOES.—Plant the same as recommended in former years. Take up by the first week in September, if possible; and, the ground being manured and dug, a proper quantity of Grass seeds of the perennial kinds, mixed with White Clover, may be sown. The ground being clean and well harrowed over before, and rolled after, the seeds, if good, will soon make their appearance, and cover the ground early in autumn.

MANGOLD WURTZEL requires no particular comment; but as it remains on the ground late in the autumn, nothing can be done except ridging the ground after it is removed.

HOLCUS SACCHARATUS.—This half-tropical plant is said

to be useful as a green food, but all animals are not fond of it. One thing, it certainly produces as large a bulk of such food as anything I know. About the 1st of May is the best time to sow it; and as its growth is very rapid, it is quickly fit to cut. Experience, however, has shown that it does not grow so well after being once cut as was represented, so that the inexperienced ought to be on their guard. It seems to answer well on dry ground, and endures a dry season well.

WHITE CARROTS.—The ground for these ought to have been deeply dug as early in the winter as possible; and for at least six weeks or more before the time of sowing it ought not to be touched, as it is important to sow the seed on ground that has been some time exposed to the atmosphere. Drills eighteen inches apart will not be too much, and the young plants must be thinned by hand when they are ready: about the middle of April is soon enough, the enemies to vegetation not being so numerous after that time. The crop may be taken up late in autumn, and stored away in any outhouse, or covered up the same as recommended for Swedes; but in a general way they like better to be exposed some time to the atmosphere.

BARLEY.—I have advised this crop as being the most likely of any to be useful at home. Pigs are very fond of Barley, &c.; a good sample always finds a ready sale. It ought to be sown about the beginning of March; and in May, Grass and White Clover seed may be sown amongst it, rolling the whole afterwards to consolidate the ground. If all go on well the Grass and Clover will have attained a good growth by harvest time. The Barley had better, therefore, be mown, and lie a day or two in the swarth, if the weather be fine, in order for the green herbage to dry; after which, it may either be bound or carried in a loose state. But as the quantity is small, it would be better if some arrangement could be made with a neighbouring farmer to have it thrashed out at once. The corn being safely put away, the straw will remain for any purpose it may be wanted for; and if there be much Clover in it, cattle will eat it tolerably well. At all events it will be useful in many ways, and must be taken care of in due course.

AUTUMN OF FIFTH YEAR.

At the close of this season we are left with no green crops. True, there is a quantity of Carrots and Mangold Wurtzel, but the bulk of the ground is in herbage. The Clover lea we will presume to be worn out, and must be dug or ploughed up. The Lucern remains as before, as also the permanent Grass; and the second batch of the latter will be coming on if the weather is open. We shall, therefore, sow the Clover lea with Wheat; and as green food will be more scarce next year than hitherto, the part that had been Carrots might be sown in the autumn with *Trifolium incarnatum*. The part that had grown the *Holcus*, might be trenched, in readiness for Potatoes the ensuing season, the cropping of which we shall next give.

J. ROBSON.

(To be continued.)

SPERGULA PILIFERA.

I AM sorry I cannot exactly comply with the request of Mr. Robson respecting the above. However, I have paid three annual visits to the gardens of Mr. Summer's, at Sydenham, and each time the portion of lawn allotted to the *Spergula* looked in the best possible condition: although growing on a sharp incline, and much elevated, not a brown spot could be detected; and I was assured by the person who showed me round, that it did not require so much trouble bestowed upon it as the grass upon the lawn. That is to say, using the man's own words, "It required no water or any other stimulant to keep it green and thriving," as it looked on each of my visits. These visits were in the months of June and July.

It is doubtful, as Mr. Robson says, whether it will stand the traffic and barrow-work our grass lawns are subjected to. I should say certainly not, especially the latter.

It was so arranged at Sydenham that neither foot nor barrow need touch, having a gravel-walk round it. I hardly think the garden at Sydenham, where we may say the *Spergula* first sprang into notice, is a fair place to select for proving its real value as to what it may eventually turn out to be, as, doubtless, no pains are spared to keep it in the best possible condition.

I can assure Mr. Beaton I was pleased with his remarks on the *Spergula*; but I was much disappointed by his description of the Grape Vines grown in pots, which he stated would be a match for those grown by Mr. Drewett—the Denbeighs, which were certainly a long way behind the mark.—EDWARD BENNETT, *Osberton, Notts.*

SOIL FOR GENTIANELLA.

BANISHING DAISIES FROM A LAWN—SURFACE PLANTING ON HEAVY SOIL.

Will you let me tell "AN AMATEUR" that the *Gentianella* will never bloom satisfactorily in deep soil; but that if he will plant it on the gravel-path with two or three inches of light soil, the plant will bloom abundantly?

May I also tell a former inquirer how I got rid of the Daisies? My lawn and house are at least two hundred years old, on stiff clay. There was no drainage; and after heavy rain the water stood on the grass for days. It used to be a sheet of white with the Daisies. I first drained deeply, covering the pipes with two feet of ashes, filling up with the clay and plenty of road-drift. This answered perfectly. In the autumn I gave the lawn a good dressing with old road-drift. In the spring ditto with sandy loam. I then sowed it well with Sutton's lawn mixture. In the next autumn a good dressing of fine ashes and soot. In the spring another slight coat of loam and more lawn seeds. Now not a Daisy is to be seen, except, indeed, in a portion of new lawn recently added, and which I am about to serve in the same way.

I am much surprised to hear of the great losses from the October frost. Neither I nor my gardener is very sharp or weatherwise; but we had two good days' clear notice of it, and took up every plant (some hundreds) that we wished to keep; had a little covering saved for some time; Geraniums, Petunias, and Verbenas in a south border.

May I bear my testimony to the great value of planting choice trees and shrubs above the surface in heavy soils? The effect has been with me wonderful.—E.

WINTERING BEDDING PLANTS.

How frequently do we find flower gardens planted with odds and ends, and bits of anything—no balancing of colour or height—all appears a mass of confusion, poverty, and want of taste; and the reason generally assigned for such planting is—they cannot accommodate a sufficient number of plants over the winter to plant the beds as they would wish. Perhaps the following notes will assist some out of their dilemma, and enable them to plant their flower gardens with any colour or quantity.

CALCEOLARIAS may be propagated from September to November in the following manner:—Select a piece of ground as much sheltered from the north and east winds as possible. On it spread a mixture of sandy loam and leaf mould to the depth of two inches. Over that spread nearly half an inch of sharp river sand. Then tread, or beat it down with the back of the spade as firmly as possible. After which collect all the hand-lights together that can be spared, and place them on the prepared ground, so that each light may mark out its respective size, in order to facilitate the moving of the lights off or on without setting them on, or breaking, the cuttings. When the cuttings are put in it will be necessary to shade them for a few days if the sun is powerful; and when there is any indication of a severe frost it will be necessary to cover them with a mat. Although I have known them to withstand 8° of frost without any apparent injury, nevertheless this is no game to play at. They ought to be covered; and in order to lessen the labour of covering for as long a period as possible, it is only necessary to propagate one-half in the autumn that will be required—as plenty of cuttings will be got of those that were struck in autumn, and will strike like Willows in early spring, and make quite as good plants as their parents, if not better, by planting-out time. After they are struck they will be better to be turned out in a south border for three weeks before they are planted out in the beds. Put some old tan

or leaf mould to the roots, which will cause them to lift with good balls, and when put in the beds will grow away directly without receiving any check. Mr. Fish recently remarked that the *Calceolarias* do best that never smelt fire heat. The above is a proof of it. I have seen none to surpass them, and, without any partiality, very few to equal them.

VERBENAS.—Make a rough calculation of the sorts that will be most wanted—say two or three boxes of a sort, put them into a pit where they can have a little bottom heat, and be kept rather close until they strike root, after which they must be taken out and placed in any cool house for the winter. About the beginning of February there will be plenty of cuttings to increase them eight times their number. The Beatonian system is the best to adopt then—that is, fill large flower-pots, flats or pans, about half full of water, then put in as much sand, and no more, as will prevent the cuttings from falling over. Insert the cuttings as you would stick pins in a pincushion; then they may be placed on a warm flue, or any place where they can have a little light, and a little heat. They will neither require shading nor a close atmosphere, only see that the pans are not allowed to become dry for want of water. In short, they will strike freely where a gardener would scarcely think of putting anything else. As soon as they are struck, and of a sufficient size to take cuttings from, take them off, and remove the plants into a cool house for a few days to harden; after which they ought to be planted out in low turf-pits in light soil, four inches between the lines, and the same from plant to plant in the line, and ought to be fully exposed to the weather, except when there is any indication of frost, when they also ought to be covered with mats. Before the 1st of April, this last spring, the major part of our Verbenas were planted out on a south border, their little heads scarcely peeping about ground; consequently they had, on the last day of February, a shower of snow, and on the 1st of April 14° of frost to endure, with nothing but a single mat over them, and at planting-out time better plants could not be desired.

PETUNIAS.—It is unnecessary to propagate very many of these in autumn, as they will propagate by thousands in early spring. As soon as the cuttings are rooted put them into a cool house for a few days to harden off, when they should be turned out into turf-pits.

I intended to have made a few remarks on the treatment of bedding Geraniums; but it is impossible to treat them more economically than that intelligent and trustworthy writer, Mr. Fish, has already prescribed for them in some recent numbers of THE COTTAGE GARDENER.—JAMES REID.

[We have to apologise to Mr. Reid for not publishing this before. The MS. had been mislaid.—EDS.]

SPERGULA PILIFERA—ANOMATHECA CRUENTA.

You ask for experiences on the *Spergula pilifera*. My experience is, that it is slow in getting well established, but very rapid in growth when once fairly established. I fully endorse all Mr. Beaton's expectations about it, and am sure that those only will be disappointed with it who expect to obtain a perfect lawn in three months without any trouble. I advise any sceptic to do as I did when I disbelieved—go at at once to Forest Hill and see the *Spergula*-lawn well established, and ninety-nine out of a hundred will do as I did, and give Mr. Summers an order at once. Even without the *Spergula*, the garden will well repay a visit.

It may interest Mr. Beaton to know that I saw this summer at Wheeler's, at Warminster, a fine bed of *Tritonia aurea* that had stood two winters. The blooms were far superior to those in pots. In the same garden was a bed of *Anomatheca cruenta*, and another of *Cypella Herberti*, all treated as hardy plants.

Have the gardeners found *Morina longifolia* to be a perennial or a biennial? With me it has only been a biennial. I have myself grown *Tritonia* well as a half-hardy water plant.—H. M. E.

[The *Spergula* question is quite safe. The plant is far better for the lawn than we have yet dreamed of. Mr. Wheeler's, at Warminster, is just the place to hear of scarce, rare, and very beautiful plants such as you mention. We were not aware that *Anomatheca cruenta* was quite hardy, although it has been our favourite plant of all the *Ixia*-like bulbs for the last thirty years: and now, if we had it, we would try a line of it between *Cerastium tomentosum* and the *Golden Chain* on the ribbon-border.]

HOUSE AND TOWN SEWAGE.

(Concluded from page 142.)

ANALYSES OF SEWAGE.—Having shown the value and the abundance of this fertiliser by evidence which admits of no refutation, we will next detail the sustaining evidence afforded by Chemistry; for we fully agree with the Royal Agricultural Society in the importance of combining “Practice with Science.” Practice shows what is; and Science shows that what is, ought to be.

Mr. J. C. Nesbit, the distinguished master of the Agricultural and Scientific School at Kennington, states, that by weighing the excretions of one person for some time it was found that the average weight of solid fæces was about 8 ozs. avoirdupois daily, and of urine 3½ lbs.; varying according to diet and state of the air. The annual amount will, therefore, be nearly 168 lbs. solid excrement, and 1232 lbs. of urine. Analyses showed their constituents were as follows:—

	Fæces.	Urine.
	lbs.	lbs.
Moisture	123·0	1196·3
Nitrogen	3·3	9·9
Organic matter	37·0	15·9
Inorganic matter	4·7	9·9
	168·0	1232·0

Mr. Nesbit then states the comparative composition of equal quantities of dried mixed human excrements, rape cake and guano:—

	Rape Cake.		Guano.		Mixed Human Excrements.	
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Moisture	—	195·8	—	268·8	—	269·0
Nitrogen	—	115·4	—	258·6	—	322·0
equal to ammonia	140·0	—	313·6	—	390·0	—
Organic matter	—	1654·2	—	938·6	—	1293·0
Inorganic matter	—	274·6	—	774·0	—	356·0
containing phosphoric acid	43·7	—	224·0	—	64·9	—
	2240·0		2240·0		2240·0	

From this it will be seen that the dried excrements are preferable to the guano and rape cake as far as concerns the ammonia; and superior to the rape cake but inferior to the guano as respects the phosphoric acid.

Dr. Daubeny, Professor of Agriculture at Oxford, from the analyses of Professor Way, sustains the conclusions of Mr. Nesbit, though differing in the relative amounts. Dr. Daubeny estimates the mixed excrements of a family of four as amounting in the year to 4745 lbs.; containing 30 lbs. of nitrogen, 10 lbs. of phosphoric acid, and 6 lbs. of potash. In these proportions, and considering that there are 650,000 families in London, then Dr. Daubeny calculates the annual value of their sewage is £635,150.

The analyses by Professor Way, above referred to, are as follows:—

	Urine.	Fæces.	Guano.
Organic matter and salts of ammonia	67·54	88·52	52·61
Insoluble siliceous matter	·90	1·48	1·54
Oxide of iron	·50	·54	—
Lime	·61	1·72	—
Magnesia	·47	1·55	—
Phosphoric acid	4·66	4·27	24·12
Sulphuric acid	·46	·24	
Potash	1·83	1·19	8·64
Soda	—	·31	
Chloride of potassium	5·31	—	
Chloride of sodium (common salt)	18·88	·18	

We might accumulate many similar testimonies; but will only add that Professor Miller, of King’s College, in his parliamentary evidence relative to one Thames sewer only, said, “The quantity of potash which passes out of this sewer *per day* averages about a ton weight; and about the same quantity of phosphates of lime and magnesia; and of ammonia nearly two tons.”

DEODORISING.—A very erroneous opinion is entertained, that house sewage is so fetid and disgusting, that, unless deodorized, it

could not be employed near a residence without its being an intolerable nuisance. Such opinion is founded upon the stench incident to the emptying of the long-confined accumulations of dead-wells by the nightman; but there are none such incidents to sewage-tanks, the contents of which are from week to week, and from day to day, removed on to the soil as its cultivation requires. The mouth of the pipe which delivers the house-sewage—of the employment of which we have the best knowledge—is over a common cinder-sieve of wire: this intercepts all solid bodies, but permanently retains only those which are insoluble. The sewage is raised as required by a lifting-pump from the tank, situated about 100 yards from the house, and the wind must blow very strongly and directly towards the house before any smell of the sewage can be detected. For within five minutes after the sewage has been poured over the soil, you may stand upon that soil without the slightest smell of the sewage being perceptible. The earths of which all soils are composed are of the number of the most powerful deodorisers. So much is this the fact, that we have known the sewage poured among Chrysanthemums in the bed of a conservatory opening into a dining-room and drawing-room, during the family’s absence, and on their return an hour after they could not detect that the sewage had been employed.

APPLICATION OF SEWAGE.—It should be applied to crops and plants whilst they are growing; and we have already stated how it should be poured into gutters formed in the soil between the rows of kitchen-garden vegetables. To Roses and other ornamental plants, a basin formed by a mound of earth in a circle about one foot from the stem is an equally efficient receptacle. To fruit trees a similarly encircling mound should be made three or four feet from the stem.

To kitchen garden crops it may be applied once or twice a-week, oftener in dry weather than in wet. To ornamental plants once a-week is quite often enough; and to fruit trees once a-month is sufficient.

House sewage should comprise nothing but the drainage from the waterclosets, the kitchen-sink, and the chamber-slops. It may then be applied, without diluting with water, to the soil about the roots of all growing crops, plants, and trees, except to such as are growing in pots. About a pailful to six square yards is a good allowance to Cabbages, Asparagus-beds, and all such crops. To potted plants, one bucket of sewage to three buckets of water is a good proportion. It is far better to apply it weak and often than strong and seldom.

In winter, when there are no growing crops requiring its application, we pour the sewage over vacant plots in the kitchen garden; over the Asparagus, Sea-kale, and Rhubarb-beds; and among the trees and shrubs in plantations and borders.

If it be necessary at any time to have a store of it in a solid form, the process of making it so is very simple. Add a quarter of a pound of oil of vitriol (sulphuric acid) to every bucketful of sewage. The sewage should be from the waterclosets only. Mix the sewage so acidulated with as much of coal ashes, or of dry earth, as will soak it well up and yet be handable without wetting the hand. Mix a quarter of a peck of superphosphate of lime with each bushel of the sewaged ashes, or sewaged earth, and you will then have as powerful a manure as almost any of those advertised as artificial manures. Keep it in a dry shed, and put it in the drills with the seed, or to plants in a circle round each, and cover with an inch of the soil.

CONCLUSION.—The employment of house-sewage as a fertiliser is a very ancient practice. Columella, writing eighteen hundred years ago, gives full directions for its employment, especially recommending it to be applied to Vines and other fruit trees. The workmen, he says, should collect and preserve, not only what they make themselves, “but also that which is daily produced in the yard and house.”—(Columella, ii. xv.)

The practice is no less general than ancient; for in France, Flanders, China, and elsewhere the sewage is depended upon as the best sustainer of the soil’s fertility. Indeed, but for the scrupulous preservation and employment of every household’s sewage in China, its soil could not sustain its dense population.

Let no ridicule, no irrational prejudice, deter any one of our readers from employing this cheapest and best of fertilisers. It is difficult, we know, to refute a sneer; but a sneer never refuted a truth—much less should it turn any one from reflecting and acting upon a truth of such national importance as that we commenced and will conclude by enunciating:—

THE SEWAGE OF EVERY HOUSEHOLD IS MANURE SUFFICIENT FOR THE PRODUCTION OF ALL THE VEGETABLE FOOD IT CONSUMES.—J.

ORCHARD-HOUSE OF AN AMATEUR.

HAVING been frequently called upon to offer advice in cases of difficulty, I feel myself in a position to offer a few remarks.

Many and grievous are the complaints that I have heard, not so much against the principle, as of certain anomalous results which distress the ardent amateur. Being out at a certain exhibition during the past summer, I was called in by a gentleman to consult about these puzzling results. This gentleman had purchased half a dozen or more Peach trees prepared for forcing; he took what he called every pains with them, but every Peach fruit tumbled prematurely. He had several Vines in large pots; but here, again, the bunches ran into wire, or tendrils. As for Pears in pots, I forget how many he had; but now, in the third year, he has obtained one fruit. There were sundry other fruits in the house, as Raspberries, Quinces, &c.; and, as far as I could learn, the whole had been very unsatisfactory.

Now, the house was span-roofed, running north and south; and a capital structure it would have been but for some grave omissions in the erection. In the first place there was no ventilation at the apex,—a serious affair. In the next place, what side-sashes did slide or open, opened below the ground level—there being an embankment of soil for a special purpose. Such a structure must necessarily rise to great extremes of temperature during the summer months; and although the worthy proprietor told me that few things burned in it, yet I would have folks consider that things may be robbed of their juices to a most prejudicial extent without showing what is called burning. A house like this without shading is sure to produce unfortunate results.

But the structure is not all. Few, except experienced amateurs, know how to water in a proper degree, and at proper times. I am of opinion that it is in the matter of watering, amongst other errors, that so much dissatisfaction exists. I have frequently been asked the question, "How much water must I give, and how often?" Now, it is quite impossible for the most practical man to answer this question in a workable way, for in trying to lead he may easily mislead.

The fact is, the time to water a bush of any kind is when it is rather dry—not too dry; and the quantity to be given depends entirely on the requirements of the bush; requirements modified by the heat and light of the period, and the stage of growth the plant is in. But besides all this, there is the time the bush has been in the pot, and how full of roots the pots may be; for depend on it, whatever the warm advocates of pot-culture may say, the soil will speedily become exhausted; and exhausted in that way, that top dressings and liquid manure cannot fairly supply the requirements. If I had to pot trees for an orchard-house, I would assuredly adopt the plan which I have followed with much success for many years with the Camellia.

I have before described it in the pages of THE COTTAGE GARDENER; but as it is long since, I will repeat it. The matter we are about resolves itself into the question, how to prepare a soil which shall possess the greatest durability. Richness through manurial matters we can add afterwards, either as liquid manure, which is by far the most convenient form, or by surface dressings. Now, I have lots of Camellias, eight feet high, in pots of eleven inches diameter; and in these they have been without disturbance for eight or ten years, and they are as fine and as full of buds just opening as they were seven years since. This I say to show that these results are entirely owing to the durability of the soil, and I do think the idea can be pushed no further.

In preparing the soil I selected a very strong loam—that is to say, one inclining to clay; but it was from an old ley which had not smelled the plough for some twenty years; the turf as thick as three blankets. This was skimmed about four inches in thickness; and being obtained in September in a dry state, was instantly chopped into lumps of one to two inches square. These were housed, or otherwise so managed as to get them quite dry. When dry they were tossed in a riddle until one half of the mere soil was ejected, and the pores of the lumps thoroughly opened. This turfy matter when handled was a good deal like little balls of worsted, so elastic, and more than one half the mass fibrous matter. These were, in a dry state, rammed into the pots as hard as was possible, and it is astonishing how many years such a nidus for fibres endures. The organised matter is years before it entirely loses its texture; and is the medium, above all, for doing justice to liquid manures. This is what I recommend for orchard-house fruit trees.

But to revert to the disappointments alluded to, again say

that I think the matter of watering the most serious: unless plants in pots in-doors receive every attention in this way, it is vain to expect success. They cannot, like their out-door congeners, profit by the shower; they depend entirely on the hand of a kind master. But the great puzzle with those who are not practical is to know how to water. I would advise those who are in a fix this way to seek the advice of a good, practical gardener, who will teach them what books cannot do. But let them repeat the matter through the various seasons, for watering especially, is so much modified by the period. In the spring—say February to March, the plants will be just forming their first fibres; and at first there is a moderate demand for root moisture. But as the season advances, so do the needs for watering; and this demand continues to increase until the fruit is nearly ripe, when it is deemed expedient, for the sake of high flavour, to use a somewhat lighter hand. But this must be no sudden check, but gradual and gentle. What is called being pot-bound is a thing to be taken into full consideration. After the lapse of two or three years such will be frequently found to be so, and a shift may become necessary. In such cases, as it is inconvenient to use much larger pots, some liberation of the soil attached to the old ball is generally needed. This must be done with care, and certainly a good deal of exhausted soil may be liberated without deranging the fibres. Of course it will reduce the volume of the ball; and it is possible it may go into the same size pot, or, at most, one size larger.

And, here, by using such loamy turf as I before described, crammed into the interstices and pressed tight, the life of the tree will be renewed, and liquid manure had recourse to with a liberal hand.

Amongst other matters, especially where liquid manure is frequently used, attention must be paid to a sound drainage; and it *must* be sound. The hole, or holes, in the bottom of the pot should be first well secured to produce several apertures, by using over-lapping crocks; but these again must be protected from that silt-and-water deposit which must take place. Pounded charcoal with the mere dust removed is a good cover, and on this a layer of the riddled turf; the pot then is fit to receive anything with the other concomitants.

Let me advise, then, our amateur beginners in orchard-houses to look over these points, and to consider the real needs of trees according to their habits and the periods in question. A little solid consideration, keeping the matter simplified as much as possible, will guide the inexperienced much. The worst of it is, that gardening books alone can never make a complete gardener, or every amateur would be as complete as the professional. However, they are a mighty assistance; and in this way THE COTTAGE GARDENER has rendered more real assistance of a practical character than all the others put together. It has been the business of the writers to brush away the cobwebs, or mysticisms, which at the period of its commencement fairly swamped the noble science of gardening. We were inundated with what they called facts; but they were so isolated, that the pearls were in danger of being lost for want of stringing. Now we have things in a more condensed and concentrated form, and we know how to render the vast accumulation of facts available. But sheer practice, allowed now and then a glimpse of science, has accomplished this.

R. ERRINGTON.

PYRULARIA OLEIFERA.—Among several shrubs which we obtained for cultivation, the *Pyrularia oleifera*, or oil-nut, is peculiarly interesting. It grows to the height of from five to ten feet, and bears a Pear-shaped fruit little more than an inch in diameter, which is so oily that it will burn like a candle if a wick be drawn through it. Squirrels are fond of it, and cattle have a great liking for the young branches and leaves of the *Pyrularia*. Last spring we saw an abundance of it in the edge of some woods fenced into a Wheat-field, and in October we again went there after the fruit; but the harvest was past, the field had been pastured with cattle, which had destroyed nearly all the *Pyrularia*. Hence it has already become rare, and the general occupancy of the mountains with herds of cattle, and flocks of sheep, would soon destroy it entirely. Mr. Durand, of Philadelphia, thinks that the oil expressed from it is superior to the best olive oil. Our specimens of the *Pyrularia* have been planted at Philadelphia, New York, at the Botanic Garden at Cambridge near Boston, and also some of them have been sent to Paris to the Acclimating Society of France, whose object is to acclimate useful trees, shrubs, and plants.—(S. B. BUCKLEY, in *Silliman's Journal*.)

LINTON PARK.

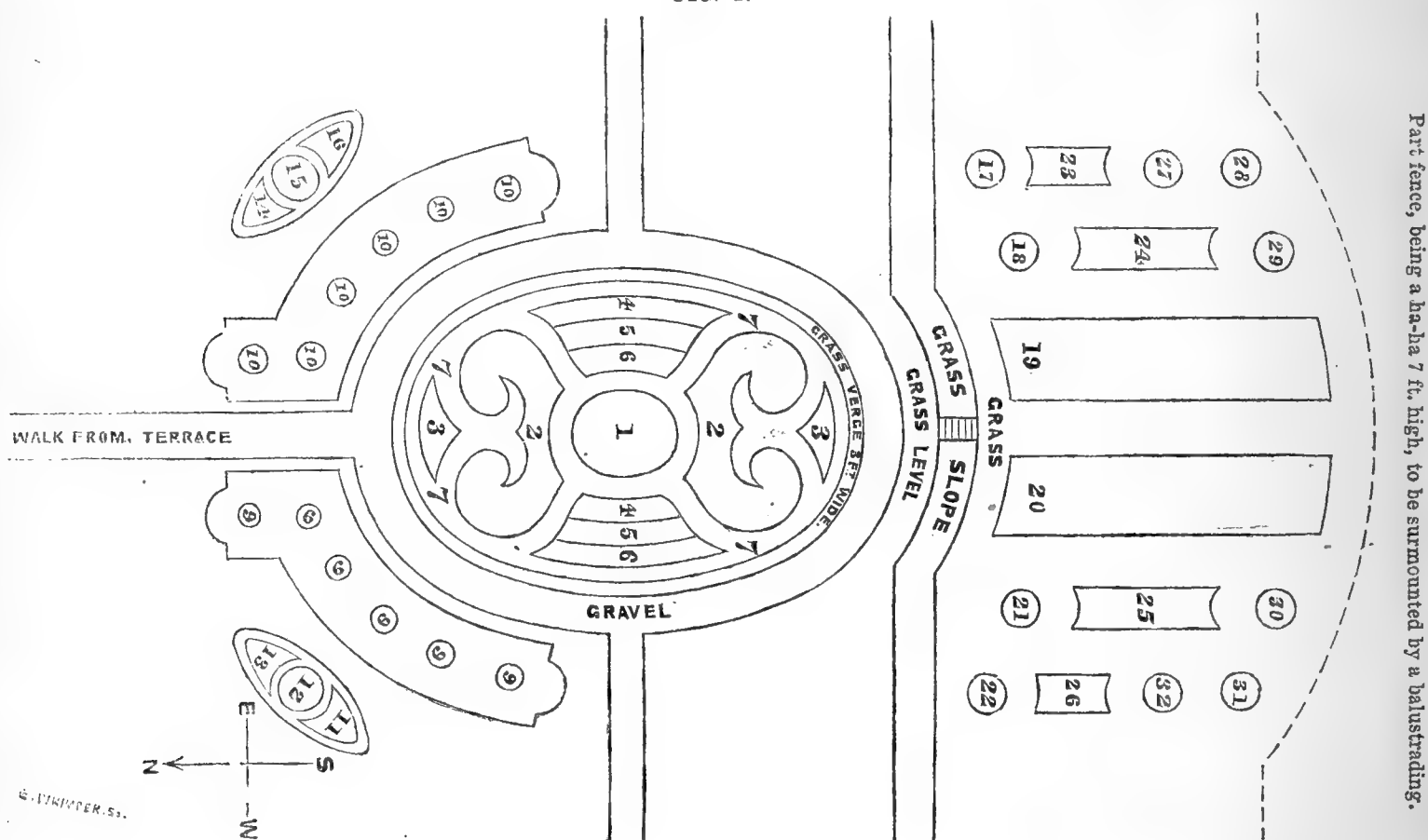
(Continued from page 145.)

I now come to the peculiar and distinctive feature in the ornamental gardening—namely, the grouping with fine effect of a huge oval of 90 ft. by 70, or 68 ft., without any pathways either of grass or gravel, except what surround it; the oval being placed on the level ground between VII. and VIII. in *fig. 1*, and shown as planted out in *fig. 2*; the other beds on the other level from VIII. to IX. being managed more in the usual way. This huge group was past its best in October; but the first peep I had of it by moonlight from the terrace, was very striking—the favourable impression being more than confirmed the next day. It looked very well even when close to it; but looked better from the terrace; better still from the principal rooms above the colonnade; and best of all from the roof of the mansion. These facts will give an idea where such a plan could be most successfully followed. The spectator should be able to look down upon it and take it all in at once. Owing to the laws of perspective,

when looked at from the terrace the oval seems a perfect circle, Mr. Robson was induced to adopt this plan from finding a difficulty in pleasing himself and others chiefly interested as to a permanent design, having a reluctance to adopt a mere scroll-pattern in such a position. The mode has given such satisfaction that it bids fair to be continued, especially as a new design can be easily adopted every season—easily, at least, in the hands of a master who can sketch with a pencil on paper, or a stick on the ground, with such facility. Last season (1858), I should think the design must have been quite as telling: the oval being chiefly filled with two large letters C (in honour, I presume, of the noble, amiable proprietress, and the two Ladies Cornwallis; the Cs being placed back to back, and so crossed as to leave a space for a neutral colour in the centre.

The design and planting will be seen for this season by referring to the numbers in *fig. 2*.

FIG. 2.



1. *Geranium Trentham rose*, in a mass 24 by 20 ft.
- 2, 2. *Verbena Ariosto*.
- 3, 3. *Lobelia speciosa*.
- 4, 4. *Geranium Tom Thumb*.*
- 5, 5. *Calceolaria viscosissima* and other yellows.
- 6, 6. *Verbena Purple King*.*

7. A single row of variegated Alyssum surrounds each of the beds above named, and also by side of the grass verge; the interior between these rows being planted with white Verbenas, and the whole of these white bends from three to four feet wide. It is right to add that the white Verbena in the centre of the Alyssum did not keep its position as to stiffness and height like the Alyssum; and therefore, in the later months, the Alyssum would have shown better by itself. It will be seen that each colour except yellow is set in a framework of white; that a white plant forms, in fact, the dividing pathways, and in such a group becomes more than a substitute for the finest white Derbyshire spar.

The two side beds, marked 22 ft. in width, and marked with circles 9 and 10, are thus planted (circles 6 ft. in diameter):—Purple Petunia edged round with a foot wide of Alyssum; then two feet round of *Tom Thumb*; and one more row, or one foot, of Alyssum, which meets the corresponding circle in the next series.

* In the above engraving the lower *figs.*, 4 and 6, have been misplaced; they should change places.

The outer edge beyond this, and Vandycking between the circles, was planted with *Mangles' variegated Geranium*; though, as far as I recollect, Mr. Robson would have preferred a stiff blue Lobelia, or a stiff puce-coloured plant like Cherlwood's Verbena. These beds as planted were very telling. The two small beds, each divided into three, and marked 11, 12, 13, 14, 15, 16, were planted with six Verbenas; but I forget how they were divided and edged.

The beds on the lower level were thus planted:—

- 17 and 22. *Salvia fulgens* and *variegata*, edged with Alyssum.
18. *Cuphea strigulosa*, edged with *Nierembergia*.
- 19, 20. Borders 18 ft. wide, planted ribbon style with purple Dahlias, Calceolarias, &c. Each had fine wide margins of the old *Verbena pulchella*—a perfect mass of bloom in October.
21. *Geranium Triomphe, Mont Rouge*, edged with a variegated variety.
23. *Brilliant de Vaise* Verbena, edged with white ditto.
- 24 and 25. Beds of standard Roses, five rows in each bed, and three sizes in each ditto.
26. *Mrs. Woodrooffe* Verbena, edged with white ditto.
- 27 and 32. *Araucaria imbricata*.
- 28 and 31. *Mangles' Variegated Geranium*.
- 29 and 30. Calceolaria, yellow, edged with blue Lobelia.

These beds anywhere else would have looked very nice; but, with the exception of the two large ones that were ribboned, the

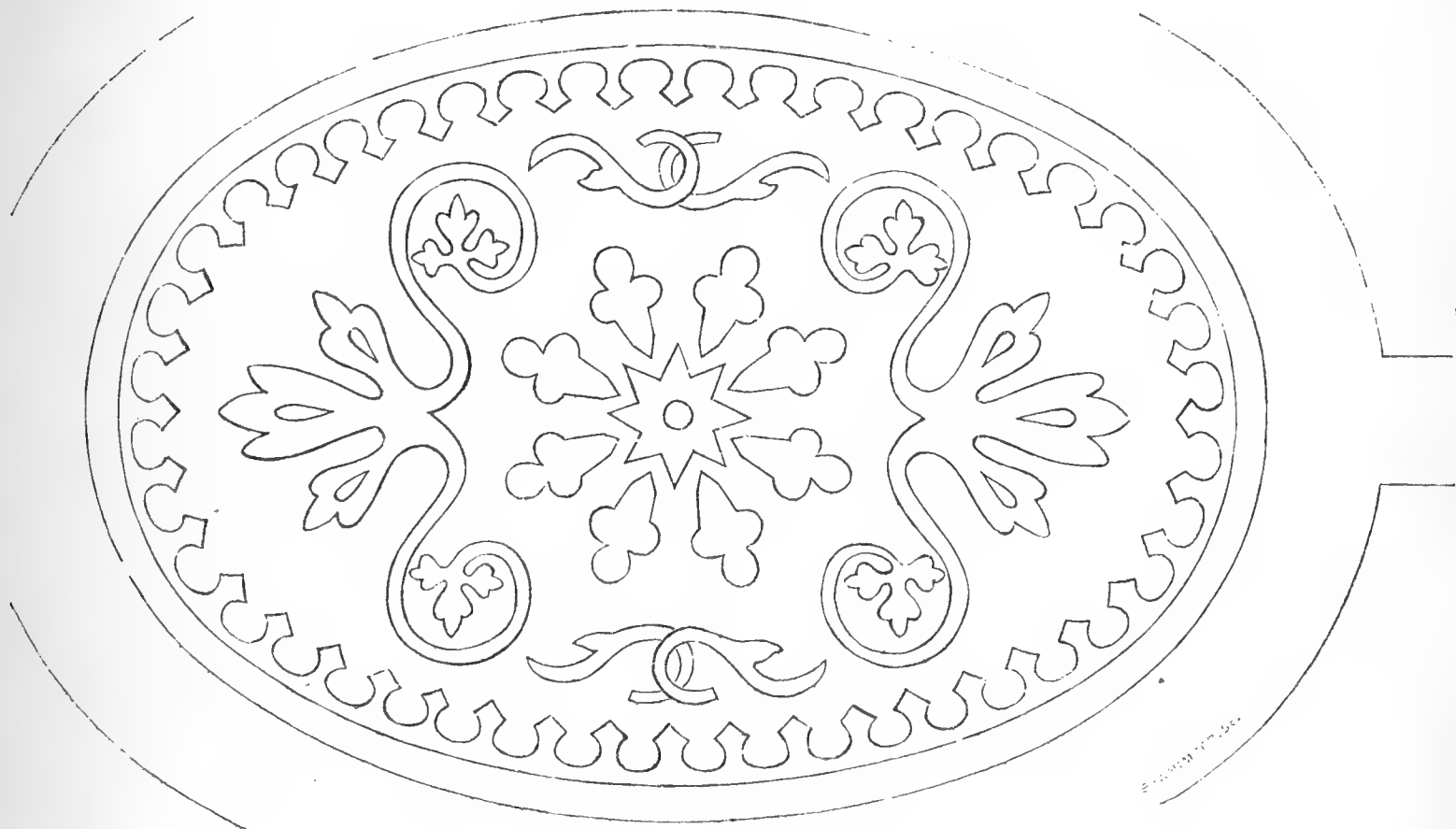
rest looked somewhat tame after the eye had been feasted to satiety in passing over the oval. I presume the Roses, however prized, will be moved to the new rosery; as, however beautiful at times, they will have a poor chance of competing successfully with the oval and the ribbon-beds.

Two objections present themselves to this mode of planting the oval. First, supposing it to be planted, how is it possible to manage and get among the plants to tie and peg, and pick dead flowers off afterwards? Mr. Robson says—that choosing proper weather, and a careful man who takes a pride in his work and is not above resorting to the old fashion of using an apron, he has experienced no difficulty whatever. The second objection is: Supposing such a mode of planting to do very well in summer, how miserable must such a mass of dull, bare earth look from the principal windows all the winter and spring; or, if planted at all, how great the labour of planting and removing, &c. Mr. Robson gets rid of all this difficulty by a mode nearly as peculiarly his own as that of planting. As soon as the bedding plants are removed, the ground is levelled, raked rather smooth,

and, when the surface is dry, rolled all over. A fresh design or pattern is then laid down, small stones of uniform size being used to mark out the figures. Pebbles would be preferred, but are not to be got in the neighbourhood. *Fig. 3* is a representation kindly given me of the appearance of the oval this winter, done in colours,—black, white, and red,—sufficiently deep to keep the colours all the winter. I understand the ground colour is black, and our readers may guess the others. I suspect the black will be cinder ashes; the white small shells, spar, or chalk; and the red burnt clay. But I only suspect so. I feel sure such a pattern will have a nice effect from the terrace and windows all the winter and spring. In May, or earlier, the stones will be picked up, another pattern adopted, and the ground prepared for bedding plants. By such constant change it is hardly possible to tire of a design.

Leaving this novelty in flower gardening, we enter a main walk from the end of the terrace extending eastwards some three hundred yards or more, terminating in a summer-house; passing first on the north side the stables and part of the kitchen

FIG. 3.



garden, sufficiently fringed by trees and shrubs; then a conservatory or orangery, with a Dutch flower garden in front, and sufficiently elevated to permit several green slopes and landings between it and the walk, to which we will revert ere long. Some fifty feet farther on we catch a view of the tops of a range of new greenhouses against the same wall, and then the walk is bounded by a close Laurel-hedge trained in the subjoined fashion (*fig. 4*), the slope being next the walk. The south side of this walk for as great, or a greater, breadth than that shown at the sunk fence in *fig. 1*, is chiefly sloping lawn, clothed with shrubs, groups of flower-beds, and fine, healthy, young specimens of the Pine tribe, with, perhaps, quite enough walks traversing it to give easy access to the beds, &c. Before entering on those walks, however, we were joined by Lady

Julia and the two Ladies Cornwallis; and I was honoured by being asked my opinion on some matters, although the ladies and their manager seemed to have pretty well already arrived at a settled determination.

The first of these had reference to the result of a mistake often made by first-rate planters—namely, the planting small plants of fine things too near to permit each developing its form and

beauty. In one instance, where moving or cutting down will have to take place, a fine tree of *Pinus insignis*, forty feet in height, is getting so interlaced with a beautiful Deodar Cedar of thirty feet in height, and wide in proportion, that it is resolved to cut away the latter, as there are more Deodars as fine, but no other *P. insignis* equal to this.

By the branch walks near the end of the terrace, not only were there groups of flower-beds in the open spaces, but it looked as if the whole pinetum and arboretum had been dotted with flower-beds when the trees were small. Many of these, no doubt, have been turfed; and if many more were so turfed over, and the same thing done for some of the walks, the trees would look more in their element, and breadth of lawn be secured. There is no beauty in a walk unless it is associated with necessity and utility. In some of these beds were fine masses of spring-flowering plants: and for keeping up such supply I noticed great quantities of *Alyssum saxatile*, white Arabis, purple Aubretia, evergreen Candytuft, &c., in borders in the kitchen garden; but these may find a suitable place, and the thriving specimens on the lawn have more grass room around them, and no contrast forced between them and such flowering plants as Dahlias, &c.

I did not think to inquire how long the pinetum had been planted, but the trees are thriving vigorously. A small plant of *Picea nobilis* had been injured and lost its leader, and had made

two leaders for itself, each of which had grown two feet, or thereabouts in a season. A pretty *Cupressus funebris* was 8 ft. in height. An *Araucaria* was 25 ft. and sweeping the ground. Some specimens of *Abies Morinda*, or *Smithiana*, were 25 ft. in height; diameter of head 16 ft., and branches sweeping the ground, forming fine sugar-loaf-like pyramids. *Pinus ponderosa*, 30 ft. in height. *Araucaria Braziliensis*, 18 ft. in height, has two leaders; foliage a little rusty; planted twelve years. *Cryptomeria Japonica*, 26 ft. in height, dense, and compact. *Picea Pinsapo* nearly 20 ft.; very beautiful. *Taxodium*, fine plants. *Abies Cephalonica*, 23 ft. in height; diameter of base sweeping the ground 20 ft. *Pinus excelsa*, 24 ft. in height; diameter of base of head sweeping the ground 30 ft. *Pinus Teocote*, 24 ft. in height; diameter of head 30 ft.; foliage more silky, drooping, and not seemingly so hardy as *excelsa*. *Cupressus Lambertiana*, 17 ft. in height; brought as a plant, a few inches high, by Lady Julia Cornwallis five years ago, and a half ago. We must pass over fine plants of *Pinaster Austriaca*, &c., to chronicle a splendid plant of double white *Camellia* that has stood out on this pine-tum-lawn several years; height 8 ft.; diameter of head 13 ft.; and the points of the shoots smothered with buds, though many had been thinned out. Also, a vigorous Cork tree in the centre of the main walk referred to; good height; diameter of branches 55 ft., and circumference of bole, three or four feet from the ground, 10 ft.; a very fine tree, though wanting nearly eighteen inches to equal the best specimen at Mamhead in girth. A fine Tulip tree that blooms profusely, and which sends out, eight feet or so from the ground, one immense limb, at right angles with the stem. A fine Copper Beech; diameter of head 60 ft.; and close to the end of the terrace some magnificent Elms, two of which, girthed at eighteen inches from the ground, 18½ ft. and 19 ft. in circumference; and at 4 ft. in height, 16 ft. in circumference, the diameter of the heads being 70 and 80 ft. Also, numbers of Larch trees, especially near the kitchen garden, clothed with Ivy to the summit, looking very pretty and romantic; but confirming Mr. Robson's several-times-repeated statement, that the Ivy would ultimately be the death of the trees.

I return to the Dutch garden and orangery, or conservatory against the garden wall, to notice that the position is almost as fine as the terrace in front of the mansion. The ground in front of this garden is also laid out in turf-slopes and landings; the fourth landing from the garden having a fountain in the centre, fringed round with a canopy of Roses, terminating in a point. Beyond this there are several more slopes and landings, until the more level lawn is reached. Opposite the centre of the orangery all these slopes are furnished with stairs. In fact, in such places, and in the slips of the kitchen garden, there are enough stone steps to make a little fortune. Though Mr. Robson had laid out this garden afresh in the Dutch style only a few years ago, yet, partly from the orangery needing some repairing, and partly from a nearly-formed resolution to replace it with something more worthy of the position, and partly from having no great esteem for the open Dutch balustrading (which seemed to me, with its circular and segment-of-circle openings, so beautiful and suited to the position, though the pilasters outside might be shortened six or eight inches with advantage by raising the bank all that higher against them), there did seem to be a sort of abeyance feeling about this lovely spot. This alone can account for the balustrading being deformed with Laurels on all sides, except the pleasure-ground side, which Laurels had better have been sent to keep company with the many wagon-loads already removed. I have stated that this orangery is placed against the garden wall, the house is roundish—I forget if hexagon or what—but glass all round; and though the roof is low, yet not at all a despicable house. Now, the north boundary of this balustraded Dutch garden is about fifteen feet from the wall; and therefore between them a dismal Laurel-hedge was placed, in order that the balustrade should not look upon the wall, nor yet the wall get a sly peep at the balustrade. If everything else is left as it is, remove these Laurels—and I know our friend's fingers have been itching to get at them; clean and colour the wall stone colour; cover it with Myrtles, Roses, Magnolias, &c., and make the windows in the ends of the orangery into doors, and there would be an interesting scene at once, and the balustrade would stand out in its beauty. The whole of that wall might be covered with glass, and still the distinctive feature be maintained. So much for the present. But some fifty feet east from the orangery, on the same wall, a range of greenhouses have been placed, perhaps seventy or eighty feet in length—the range commencing some ten feet or so from the end of the Dutch garden. Well, when there is more

time than there is at present, and as the northern boundary of the Dutch garden might be removed, and the garden wall be made the boundary, what is to prevent that elegant pattern being carried along the front and round the end of the new houses, and thus enclose the whole in this Dutch balustrading? All then would have a unity, whether the open wall were covered with flowering plants or covered with narrow glass-houses.

These new houses, higher than the wall by using a hipped roof of glass, were floored with Portland cement, which had stood no end of scrubbing without injury. The houses were heated by cement-pipe flues about a foot in diameter; brick only being used near the furnace and where the flue sank under doorways, and answered well; and the stages were very gay with scarlet Geraniums, Begonias, Fuchsias, and more especially with large quantities of fine-grown plants of the Globe Amaranth, white and crimson (*Gomphrena globosa*).

The kitchen garden was full to overflowing, but too small for such an establishment. Considering the season, a fair amount of hardy fruit had been obtained. There is a good range of houses. One a plant-stove, containing fine specimens of Orchids, &c.; the others fruit-houses—all of which had been gathered, with the exception of one fine house of black Grapes. Glass-pits, heated and cool, were not wanting; but the supply of glass seemed small to nurse the great quantity of bedding plants turned out. Two long pits, without covering in the kitchen garden, told all about it as plainly as could be. The plants must be kept small and close together in the houses until March or so; and then be turned out in these pits, and covered with spare sashes, mats, hurdles, and anything comeatable.

To the east of the kitchen garden and pleasure-grounds are situated the houses and yards for the different breeds of poultry; with a fine run, when deemed necessary, in a part of the park. Lady Julia is a keen amateur, takes great interest in her birds, knows all the points in the different breeds, and has been a successful exhibitor at some of the large shows. It was easy to perceive that in this department Mr. Robson was far behind his young lady in critical skill. When a boy I used to be fond of Bantams, and seeing a cock so beautifully spotted as would have been a perfect treasure to me then, I expressed admiration at its beauty; but her ladyship told me its comb was so defective she should not be able to keep it. It appears that her ladyship likes THE COTTAGE GARDENER; but although she admires flowers, it is the poultry part to which her attention is mostly directed.

How many young ladies would promote health and increase happiness were they more taken up with any department of natural history. The tendency of such studies and pursuits is generally to harmonise and refine the feelings, and create within us a kindly sympathy for all around us. Perhaps we expect this kindness more from ladies than from gentlemen. But even in their case it is very delightful to see employers manifesting such sympathetic interest in the circumstances and trials of their workmen; and these workmen, in turn, looking up to them with respect and more than esteem. Were there more of this generous sympathy on the one hand, and more fidelity and trustworthiness on the other, we should have less of those unseemly discussions as to the respective rights of capital and labour; as the rights, so called, would be reciprocally merged in the felt and acted-upon obligations of duty.

Very few out of many reminiscences must finish this lengthened notice.

A little farther to the eastward, and in a position almost as fine as the mansion, is situated Mr. Robson's new house, which for workmanship, roominess, and comfort, is a credit to all concerned. Much improvement has been effected in this respect since the period when gardeners, who by their genius gave a marking to the times in which they lived, were housed in back sheds not greatly better than coal-bunkers. Much yet remains to be done, even as to the securing of cheerful and healthy living-rooms. I have thought several times of having a chapter on the homes of gardeners; but I would now rather leave it in more competent hands.

Lobelia erinus.—Mr. Robson uses largely a rather light blue variety of this which comes true from seed, and which when others have failed, will keep on all the season without showing a patch. I noticed long lines and beds without a single break or failure.

Salvia splendens.—By the side of the walk that leads up to the new greenhouses, among other things was a splendid row of the above, which made my mouth water, as I have never been able to succeed with it here out of doors. Mr. Snow has frequently told

me how well it did with him in Kent; and even at Panshanger, near Hertford, Mr. Dawson succeeds with it. Where it would succeed, no scarlet could be more dazzling.

Bedding Calceolarias not blooming.—This was quite a new feature to me. In our neighbourhood, where there has been a talk of getting something else for the Calceolaria, it was owing to the plants dying, or getting diseased, and covered with black spots. I may just say, however, that last season I had hardly room for a single grumble against this favourite. What Mr. Robson complains of, as well as several of his neighbours, and, therefore, under somewhat different conditions as to soil, &c., is, that the plants do not flower sufficiently in the autumn months, but grow and flourish in the greatest luxuriance. They bloom very well when planted out, and for the first month of summer, and then they stand still; and when damper weather and cooler nights come, the plants grow vigorously, but do not have bloom in proportion to growth. I could not pretend to prescribe a remedy for such an evil; but judging from what has come under my own practice, I would suggest the following hints as palliatives:—First. Give the plants plenty of room in spring, and do not have them too forward when planted out—rather plant out earlier. Do not let them stand still in summer; but after the ground has been sufficiently heated, water, and then mulch to keep the roots moist and cool; and the shoots produced under such circumstances will be likely to have the flower-buds produced at their points. This would so far neutralise the sudden change from checked growth—say in July, to hotbed moist treatment in August and September. Such a course at least is worth a trial.

Bricks as edgings to walks.—Not only are walks in shrubberies and under trees so edged where nothing green would live, but most, if not all, the walks in the kitchen garden are so done, and very nice they look. The bricks are placed longitudinally along the side—not upright so as to expose the thickness of the brick, but bevelled from the walk, so that the off angle joins the soil, and the near angle stands out as a sharp clean line. I did not observe a cracked brick, though they had been down a number of years. The bricks were kiln-burnt. I should think that clamp-burnt bricks would not be equally good for such a purpose.

The nice village of Linton has a number of pretty, new, detached, double cottages, in great variety of styles, with plenty of garden-ground attached to each of them. The general neatness without, and the comfort and even elegance within,—most of those cottages having a bettermost room, carpeted, and nicely furnished,—spoke not only of the thrift and good taste, but the self-denial and good moral conduct of the labouring tenants. With the exception of the hop season, I am not aware that such labourers and their families have any extra advantage in the way of means; but as respects domestic comfort, they contrast but too favourably with other districts, where almost the youngest can find employment. Something of this is, no doubt, owing to the influence of the ladies at the mansion, and much to their securing the means of a good education to the young of both sexes. There are one, if not two schools, under schoolmasters for boys; and one under two governesses for girls, and, I think, little boys. I found the school-rooms thoroughly cleaned and comfortable, preparatory to commencing operations in the following week after the vacation. Some beautiful flowers were in front of the governesses' house; and among Roses and other things against the wall, a beautiful young plant, blooming nicely, of *Ceanothus azureus*. We found the younger governess washing the leaves of her pretty, well-grown pot plants—a bath which she gave them once a-week, if not oftener. I soon found she was a reader and admirer of THE COTTAGE GARDENER, and need I say we were soon on friendly terms? Altogether I look back to my visit to Linton as one of my very bright red-letter days. R. FISH.

ERRATUM.—The figures in profile, p. 144, from VII. to VIII., should be 250 feet, not 2500 feet. Of course, only a part of that level is shown.

A TRUE AMATEUR AND HER GREENHOUSE GLOXINIAS.

WE omitted to say (at pages 139, 140) that it would be best to place the Gloxinias at the warmest end, and let them get dry by degrees. The leaves will then dry up gradually. Then keep the roots in the pots in any place from 45° to 50°, and dry rather than otherwise, though not dust-dry. In March or April, if "M. L. E." has a Cucumber or other bed with a little heat in

it, the Gloxinias might be started there; and when the leaves were the size of a pennypiece, repotted, and kept in the bed a little longer, taking care that no steam reached them, which is best avoided by leaving a little air all night. Such plants will bloom in July, August, and September in her greenhouse, if placed on the front shelf. No air given opposite to them, and the glass either shaded or rubbed with size to make the light less glaring.

If "M. L. E." has no such bed, she should keep her Gloxinia-pots dry and at rest until towards the end of April. If wanted then, and placed on the front shelf with a hand-glass over them, they will soon begin to push. As they grow give a little air to the hand-light, and shade if required; but shut down close in the afternoon, to give the plants, as it were, hotbed heat. In July they may be treated as mentioned above for those brought from a hotbed, and they will just bloom later. The plants to bloom will like a close, moist atmosphere, and that you can secure in one part of your greenhouse by giving no air there, and setting the pots in damp moss.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 146.)

PEARS.

Martin Sec de Champagne. See *Martin Sec*.

Martin Sec d'Hiver. See *Martin Sec*.

De Maune. See *Colmar*.

Medaille. See *Napoléon*.

Melon. See *Beurré Diel*.

MESSIRE JEAN (*Chaulis; John; John Dory; Messire Jean Blanc; Messire Jaune Doré; Monsieur John*).—

Fruit medium-sized, turbinate, inclining to obovate. Skin greenish-yellow, thickly covered with brown russet. Eye small and open. Stalk an inch and a half long. Flesh white, crisp, juicy, sugary, and gritty.

A dessert pear of little merit. Ripe in November and December.

Miel de Waterloo. See *Fondante Charneux*.

Milanaise Cuvelier. See *Winter Nelis*.

MILLOT DE NANCY.—Fruit rather below medium size, pyriform. Skin smooth, light green, becoming yellow at maturity. Flesh pale yellow, buttery, melting, and juicy, sugary, and agreeably perfumed. Ripe in October and November.

MOCCAS.—Fruit medium sized, oval, uneven and bossed in its outline. Skin lemon coloured, marked with patches and veins of thin pale brown russet, and strewed with russet dots. Eye somewhat closed, set in a deep, uneven, and furrowed basin. Stalk an inch long, rather deeply inserted. Flesh yellowish, fine-grained, tender and melting, with a rich vinous juice and musky flavour.

A very fine pear. Ripe in December and January.

MONARCH (*Knight's Monarch*).—Fruit medium sized, roundish. Skin yellowish-green, very much covered with brown russet, and strewed with grey-russet specks. Eye small and open, set in a shallow undulating basin. Stalk three quarters of an inch long, inserted in a small cavity, frequently without depression. Flesh yellowish, buttery, melting, and very juicy, with a rich, piquant, sugary, and agreeably perfumed flavour.

One of the most valuable pears. Ripe in December and January. The tree is very hardy, an excellent bearer, and forms a handsome pyramid.

Monsieur de Clio. See *Vicar of Winkfield*.

Monsieur le Curé. See *Vicar of Winkfield*.

Monsieur John. See *Messire Jean*.

Monstrueuse de Landes. See *Catillac*.

MOREL.—Fruit about medium sized, obovate. Skin yellow, thickly freckled with large russet spots. Eye half open, not depressed. Stalk an inch and a quarter long, stout. Flesh yellowish-white, crisp, juicy, and sweet, with an agreeable flavour.

This in colour and flavour is like Hessel, but ripens in April, and is a good variety for that late season.

Mouille Bouche. See *Verte Longue*.

Mouille Bouche d'Automne. See *Verte Longue*.

Mouille Bouche d'Été. See *Jargonelle*.

MUIRFOWL'S EGG.—Fruit below medium size, roundish. Skin entirely covered with fine cinnamon-coloured russet, brownish-red next the sun, and thickly covered with grey-russet dots. Eye half open, set in a round depression. Stalk an inch long, set in a small, round cavity. Flesh tender, juicy, sweet, and brisk, with a strong musky perfume. Ripe in October.

Muscat de Villandry. See *Echassery*.

NAPOLÉON (*Bonaparte; Bon Chrétien Napoléon; Beurré Napoléon; Captif de St. Hélène; Charles X.; Gloire de l'Empereur; Liard; Mabile; Médaille; Napoléon d'Hiver; Roi de Rome; Sucrée Doré; Wurtemberg*).—Fruit large, obtuse-pyriform. Skin smooth, greenish-yellow, covered with numerous brown dots. Eye partially open, moderately depressed. Stalk three quarters of an inch long, stout, and inserted in a round, pretty deep, cavity. Flesh white, tender, melting, and very juicy, with a rich, sugary, and refreshing flavour.

A first-rate pear. Ripe in November and December. Succeeds best against a wall.

NAVEZ PEINTRE.—Fruit medium sized, egg-shaped, even and regularly formed. Skin yellowish-green on the shaded side, and marked with bands of brown russet, but with a blush of brownish-red next the sun. Eye open, very slightly depressed. Stalk an inch long, rather slender, not depressed. Flesh yellowish, melting very juicy, piquant, and sugary, with a fine aroma.

A very fine pear. Ripe in the end of September.

Neige. See *White Doyenné*.

Neige Grise. See *Red Doyenné*.

Nelis d'Hiver. See *Winter Nelis*.

NE PLUS MEURIS.—Fruit medium sized, roundish-turbinate, very uneven, and bossed on its surface. Skin rough, dull yellow, very much covered with dark brown russet. Eye half open, generally prominent. Stalk very short, not at all depressed, frequently appearing as a mere knob on the apex of the fruit. Flesh yellowish-white, buttery and melting, with a rich, sugary, and vinous flavour.

A first-rate pear. Ripe from January till March. It succeeds well as a pyramid, but is best from a wall.

Ne Plus Meuris [of the French]. See *Beurré d'Anjou*.

NEUVE MAISONS.—Fruit large, pyramidal, even and regularly formed. Skin smooth, of a uniform yellow colour, thickly strewed with large russet dots, and a few patches of thin russet. Eye open, set in a narrow and round basin. Stalk an inch or more in length, very stout, inserted in a narrow depression. Flesh coarse-grained, melting, with a thin, somewhat vinous, juice, but without much flavour. Ripe in October and November.

New Autumn. See *Jargonelle*.

New York Red-Cheek. See *Seckle*.

NOTAIRE MINOT.—Fruit medium sized, roundish-obovate. Skin pale yellowish-green, considerably covered with patches and large dots of rough brown russet. Eye open, set in a narrow and shallow basin. Stalk an inch long, stout, inserted by the side of a fleshy lip. Flesh yellowish, rather coarse-grained, but melting, and with a fine brisk, vinous, and sugary flavour.

A very good pear. Ripe in January and February.

NOUVEAU POITEAU (*Tombe de l'Amateur*).—Fruit very large, obtuse-obovate or pyramidal. Skin greenish-yellow, or pale yellow, mottled and streaked with pale brown russet. Eye closed, placed in a slight depression. Stalk an inch to an inch and a quarter long, obliquely inserted in a small cavity. Flesh fine-grained, buttery, melting, and very juicy, rich, sugary, and highly perfumed.

A first-rate pear. Ripe during November, but keeps only a short time.

Nouvelle Boussoch. See *Doyenné Boussoch*.

Nutmeg. See *Bezi de Caissoy*.

ŒUF.—Fruit small, oval. Skin smooth, greenish-yellow, marked with light red on the exposed side, and strewed with grey russet dots. Eye small and open, set in an uneven depression. Stalk an inch long, inserted in a small cavity. Flesh whitish, tender and melting, rich, sugary, and musky.

A very good summer pear. Ripe in August, and keeps for three weeks without decaying, which is a recommendation at this season.

Ognonet. See *Summer Archduke*.

Ognonet Musqué. See *Summer Archduke*.

Oken d'Hiver. See *Winter Oken*.

L'Orpheline. See *Beurré d'Aremberg*.

L'Orpheline d'Enghein. See *Beurré d'Aremberg*.

Oxford Chaumontel. See *Chaumontel*.

Paddington. See *Easter Bergamot*.

PARADISE D'AUTOMNE.—Fruit below medium size, pyriform. Skin covered with a coat of rough, dark-cinnamon coloured russet, which is strewed with grey dots. Eye very small and open, set in a shallow basin. Stalk an inch and a quarter long, obliquely inserted without depression. Flesh fine-grained, buttery and melting, rich, sugary, and with a fine piquant and perfumed flavour.

A remarkably fine pear. Ripe in October and November.

Parkinson's Warden. See *Black Worcester*.

PASSANS DE PORTUGAL.—Fruit medium sized, oblate. Skin pale yellow, with a lively red cheek. Eye open, set in a shallow depression. Stalk an inch long, inserted in a small round cavity. Flesh white, crisp, juicy, sugary, and perfumed. Ripe in the end of August and beginning of September.

PASSE COLMAR (*Beurré d'Argenson; Cellite; Chapman's; Chapman's Passe Colmar; Colmar Doré; Colmar Epineux; Colmar d'Hardenpont; Colmar Preul; Colmar Souveraine; Fondante de Parisel; Fondante de Mons; Gambier; Marotte Sucré; Passe Colmar Doré; Passe Colmar Epineux; Passe Colmar Gris; Precel; Présent de Malines; Pucelle Condesienne; Regentin; Souverain*).—Fruit medium sized, obovate. Skin smooth, of a fine uniform deep lemon colour, with a tinge of red on the side next the sun, strewed with numerous brown dots and veins of russet. Eye open, set in a wide shallow basin. Stalk from three quarters to an inch long, inserted in a small sheath-like cavity. Flesh yellowish-white, buttery, melting, and very juicy, with a rich, sugary, vinous, and aromatic flavour.

An excellent pear. Ripe during November and December. The tree is an excellent bearer, and forms a handsome pyramid. It requires a rich, warm soil, otherwise the flesh is crisp and gritty. In exposed situations it requires a wall.

Passe Colmar Doré. See *Passe Colmar*.

Passe Colmar Epineux. See *Passe Colmar*.

Passe Colmar Gris. See *Passe Colmar*.

PASSE MADELEINE.—This is a small oblong pear with an uneven surface. Skin green, covered with dots. The flesh is dry and very astringent, crisp and without much flavour.

An early pear. Ripe in August, and grown to some extent in the market-gardens round London; but it is a very worthless variety.

Paternoster. See *Vicar of Winkfield*.

Du Patre. See *Easter Beurré*.

PEACH (*Pêche*).—Fruit medium sized or large; irregularly oval or roundish. Skin smooth, greenish-yellow, with a blush of red on the side next the sun, and covered with patches and dots of russet. Eye open, set in a shallow bossed basin. Stalk an inch or more long, not depressed. Flesh yellowish-white, fine-grained, and very

melting, very juicy, sugary, vinous, and with a delicious perfume.

An excellent early pear. Ripe in the middle and end of August.

Pêche. See *Peach*.

PENGTHLEY.—Fruit medium sized, obovate, inclining to oval. Skin pale green, covered with dark dots, and becoming yellow as it ripens. Eye large and open, set in a shallow depression. Stalk long and slender, curved, and set in an uneven cavity. Flesh coarse-grained, crisp, very juicy and sweet. Ripe in March.

Perdreau. See *Early Rousselet*.

Perdreau Musqué. See *Early Rousselet*.

Petit Beurré d'Hiver. See *Bezi de Caissoy*.

PETIT MUSCAT (*Little Muscat*; *Sept-en-gueule*).—Fruit very small, produced in clusters, turbinate. Skin bright yellow when ripe, and covered with brownish-red next the sun, and strewed with russet dots. Eye open, not depressed. Stalk about an inch long, not depressed. Flesh melting, sweet, juicy, and with a musky flavour.

A very early pear. Ripe in the end of July.

Petit St. Jean. See *Amiré Joannet*.

De Pécenas. See *Duchesse d'Angoulême*.

(To be continued.)

TRITOMA UVARIA—PLANTS HARDY AT DUNDEE.

As Mr. Beaton has so fully treated of the culture of this plant by division of the root, may I beg the favour of a word as to its propagation by seed? I ask this on account of those who, like myself, may be out of hail of the London nurserymen, and 9s. per dozen. For be it known that, primed with that information, I marched boldly into a local nursery the other day, and asked their figure for some small plants, and had my breath taken away by the answer—half-a-crown a-piece! They told me, too, that nine out of every ten in the market (own stock, of course, excepted), were not true *uvarias*, but *Burchellis*, *medias*, or other spurious varieties. Now, if the *uvaria* could only be raised good and true from seed, then we out-of-the-way provincials might hope to go in and win with the metropolitans.

[Run up along the Carse of Gowrie, and get the true *uvaria* in the Kinoul Nurseries at Perth, where everything is sold true to name and not above the London prices. It was there in the "lower grounds" where Mr. Beaton first learned the true value of *Tritoma uvaria*; but no seeds of it can be had for love or money in London.]

As illustrating the differences of climate, and perhaps the mistaken notions that prevail as to the hardiness of some plants, I may mention that here, at the mouth of the Tay, I have in the open ground, without the slightest protection, the *Myrsine Africana* and *Fubiana imbricata*. They were not in the least touched by the sudden and severe October frost; though I find them put down in *The Cottage Gardeners' Dictionary* as greenhouse plants, requiring a winter temperature of 40° to 48°. *Mitraria coccinea* on a wall touched slightly. Chrysanthemums in border and on south wall entirely cut down; but on east and west walls untouched, and now in full bloom.—MAC.

[Very remarkable. But then, the mouth of the Tay at the end of the Carse lies so warm and sheltered, by the kingdom of Fife on the one side, and the end and flank of the back bone of the Grampians on the other—the colder side—that no other inlet on the coast is one-half as warm till we reach the mouth of the Orwell at Harwich; and the latter is Greenland itself as compared with "Bonny Dundee."

GRAFTING ROSES—SOWING TRITOMA UVARIA.

I WILL say my say, and THE COTTAGE GARDENER can do what they please with it. I want some information, and I am not too proud to ask for it. It really was a lucky thing that I had been full six feet in height for a long time before I read Mr. Beaton's observations on my Rose grafting, else in that growing weather I might have shot up a few inches easily. However, I am happy to say, no harm was done. Mr. Beaton is quite right about the

grafts rooting; but I think it will be found to be mainly in the second year. Some few of my grafts of this year made shoots four feet long, and had abundance of Roses; but, of course, they were the free growers only. The beds were not formed last year at this time, and now I have them all filled with Rose trees, 595 in number. I grafted fifty in March, 1858, and I moved them last week. They were all Hybrid Perpetuals, and they are now all rooted from the grafts, and can do without any aid from the stocks whatever. I may just say, that in all my failures I have found that I have not been near enough to the root of the stock, and the graft has not been planted deep enough. The result is obvious—drought killed them.

I now want Mr. Beaton to be so kind as to tell me how to manage to raise *Tritoma uvaria* from seed. I have been making a bed in which I have put one male and one female plant of Pampas Grass, twelve feet from each other, I allowed three feet more for a row of *Tritoma uvaria*; but now comes the pinch. I can only afford to buy four roots this season. These I can divide, but as I suppose they should not be more than from fifteen to eighteen inches apart, I shall want fifty at least. Now, if I cannot afford to buy, I can afford to—wait with patience, if I can do anything with seed. This is the point I wish to have Mr. Beaton's advice about. If I get four roots, and make of them—say fifteen or sixteen for this year, divide them the next year, will that be better than sowing seed? I doubt not but many will be anxious to see the answer, as well as myself. Still I think, if they will flower from seed in any reasonable time, I should like to try.—W. P. RUDDOCK.

["It really was," as you say, "a lucky thing," that life, which is but a span, should have been extended to "full six feet" in your person, ere you could have heard of how much good your experiments in grafting Roses were likely to do, for all degrees and sizes of your fellow readers of THE COTTAGE GARDENER, as a few more inches might, possibly, raise you higher than the point from which useful information generally comes down to us, free from the mystic lore of some conventional craft or another. And we accept with all thankfulness, this, your account of the turn which we anticipated the experiment would take, from your practical good sense of grafting the Roses, at the right end of the stock—to wit, the bottom end. A rectory gardener of our acquaintance remarks, when anything goes wrong in the parish, that "it was no wonder, seeing the whole thing was like grafting at the wrong end of the stock."

Tritoma uvaria seeds are not yet in the market, and are not likely to be for some years to come, and at the end of those years there will be no more demand for the seeds than there has been for the plant itself for the last thirty years. No seeds of it ripened at Kew last year, and nowhere else that we can hear of in England; but in some parts of Ireland seeds usually ripen every year.]

MEETING OF THE ENTOMOLOGICAL SOCIETY.

THE November meeting of the Entomological Society was held on the 7th inst., when the chair was occupied by the President, Dr. J. E. Gray, F.R.S., &c.

Donations to the Society's Library were announced from the Natural History Society of Moscow, the Literary and Philosophical Society of Liverpool, the Entomological Society of Stettin, the Society of Arts, &c.

Mr. G. R. Waterhouse exhibited on behalf of Dr. Power *Donacia obscura* and *Philonthus fuscus*—two Beetles not previously known as natives of this country. Likewise on his own account two new species of Mordella, and one of each of the genera Tachinus and Byturus new to this country. He also stated that he had ascertained that a malformed specimen of the common Mealworm Beetle, *Tenebrio mollitor*, had been described by the late Mr. Stephens as a distinct species under the name of *Tenebrio laticollis*. The specimen is now in the British Museum, taken with the whole of Mr. Stephens's collection.

Professor Syme, of Edinburgh, exhibited a drawing of the caterpillar of *Sphinx convolvuli*; also a specimen of the pale variety of *Colias edusa* from the neighbourhood of Deal.

Mr. Samuel Stevens exhibited a series of rare Coleoptera recently captured in Brazil by Mr. Squires. And Mr. Trimen a number of rare species belonging to the same order which he had taken in the neighbourhood of the Cape of Good Hope.

Mr. Ianson exhibited two new species of British Coleoptera, recently captured by him, belonging to the genera *Hydrochus* and *Mycetophagus*.

Mr. Frederick Bond also exhibited a specimen of the brilliant North American beetle, *Buprestis fasciata*, recently taken alive in London, and which had probably been imported in timber in the larva or pupa state; also a new British Moth belonging to the genus *Phycita*, taken in Dorsetshire by the Rev. Mr. Green.

A paper was read by Mr. Stainton, containing descriptions of new species of minute Moths of the genera *Coleophora* and *Adela* collected near the Cape of Good Hope by Mr. Trirnen.

Mr. Pascoe also read descriptions of some new Longicorn Beetles from the little island of Batchian near New Guinea, collected by Mr. Wallace.

A specimen of the rare Moth, *Luperina Dumerillii*, captured at Brighton, was exhibited by Dr. Allechin.

A notice by Mr. Wailes was also read on the attacks of insects upon the different species of *Rhododendron*. These consist chiefly of the caterpillars of *Mamestra Brassicae*, one of our common species of Moths, which come out of their retreats and feed on the leaves by night; also the larvæ of a species of *Tortrix*, which gnaws the edges of the leaves; and a white scale insect belonging to the genus *Aspidiotus*, which is found on the upper surface of the leaves. The larvæ of a species of *Tenthredinidæ* also eat half through the leaves.

Mr. Frederick Smith read a paper, communicated by Mr. Stone, on the economy of the *Ripophorus paradoxus*—a curious Beetle which is parasitic in the nests of the common Wasp, where it feeds on the grubs of that insect, and arrives at the perfect state at the end of July; likewise on the power supposed to be possessed by the Worker-wasps to deposit fertile eggs under certain circumstances. The details, however, had been scarcely attended to with sufficient care to justify the assertion of so remarkable a power being possessed by these neuter insects.

NEW OR RARE PLANTS.

SPIRÆA DOUGLASII (*Dougl's Spiræa*).

Discovered by Douglas on the banks of the Oregon in British Columbia. It is a beautiful shrub, with dense, erect thyrsi of deep pink flowers.—(*Botanical Magazine*, t. 5151.)

CAMELLIA SASANGUA, var. ANEMONIFLORA (*Anemone-flowered Sasangua*).

Sent by Mr. Fortune from China. Flowers white, with a yellowish tinge.—(*Ibid.* t. 5152.)

STATICE BOURGLEI (*Bourgeau's Sea-Thrift*).

Found by M. Bourgeau, "prince of botanical collectors," in the islands at Lancerotte. Blooms during August in a cool greenhouse; flowers purple.—(*Ibid.* t. 5153.)

CALCEOLARIA FLEXUOSA (*Flexuous Calceolaria*).

Sent from Peru by Mr. W. Lobb to the Messrs. Vitch, of the Exeter and Chelsea Nurseries. "Its very dense, massy panicles of large yellow flowers promise to render it well calculated for a bedding-out plant." It blooms through the summer.—(*Ibid.* t. 5154.)

GUTIERREZIA GYMNOSPERMOIDES (*Gymnosperma-like Gutierrezia*).

A native of San Pedro, Sonora, New Mexico. Its yellow flowers are too like those of our common Fleabanes to be much cultivated.—(*Ibid.* t. 5155.)

DIPTERACANTHUS HERBSTII (*Mr. Herbst's Dipteracanthus*).

A native of Brazil, sent to Kew by Messrs. Herbst and Rossiter, of Rio. Blooms during September and two following months. An erect shrub, with purple and white flowers.—(*Ibid.* t. 5156.)

TO CORRESPONDENTS.

IMPROVING A LIGHT DRY SOIL (*A Constant Subscriber*).—As the subsoil is clay you have the remedy with the evil; but we advise you to admix the clay with the ten inches of surface soil gradually. Bring three or four inches of clay to the surface; and when that has been thoroughly incorporated with the surface, then similarly mix three or four inches more if needed. We think it would not be needed if you stirred the clayey subsoil with the fork for eight or nine inches. We should prefer lime rubbish from the bricklayers instead of lime. If you have chalk in your neighbourhood, or marl, give a surface dressing of that. We incline to the opinion that draining your clay subsoil would improve the fertility of the surface; but we are only suggesting without any good data, for we do not know the locality.

FRUIT CULTURE (*Alpha*).—Buy our "Fruit Gardening for the Many." It will give you the information you need for this country; but to give

directions for fruit culture in India would require a volume which is yet unwritten. If the Plumstock does not answer there for the Peach and Nectarine, why not try them upon their own roots? We would raise them from the stones. Root-pruning might render the over-luxuriant Pears and Greengages fruitful; but the climate of the plains of southern India is too hot and moist for them. Camellias and Azaleas do not require manure at this season; and watering once a-week in a room without a fire will be sufficient, probably; but you must look to the soil, and keep it only just moist.

CAPSICUM (*D. McEwen*).—Your description agrees with that variety named by the French *Monstreuse*.

PLANTS FOR A ROCKERY (*A Subscriber at Wavertree*).—If you will purchase, or refer, to our No. 489, you will find at p. 299 a much longer list than we can at present afford space to repeat.

REMOVING BRITISH FERNS (*A Novice*).—You may move them now, and may mix peat with the soil. *Impatiens Jerdoniae* is a perennial. Any florist can supply you.

SIX NEW CONIFERS, &c. (*F—, Bideford*).—Purchase Kemp's "How to lay out a Garden." The following are six good new Coniferæ:—*Pinus excelsa*, *P. insignis*, *Araucaria imbricata*, *Abies nobilis*, *Cedrus deodara*, *Pinus Pinsapo*. We know of no work upon the construction of Bay-windows. If you send particulars of the size of the Bay-window and the style in which the cottage is built to Mr. Charles Luck, Architect, Regent Street, London, he would furnish plans such as a carpenter and mason could work from. We wrote to you, but the letter has been returned.

STANDARD FRUIT TREES FOR N.W. BORDER (*Kate*).—You may plant tall standard trees on the north-west side of your wall, so that the heads shall be above it. Such Apples as *Blenheim Orange*, *Kerry Pippin*, and *King of the Pippins* will do; and of Pears you can have *Williams' Bon Chrétien*, *Thompson's* and *Louise Bonne of Jersey*.

ORCHARD TREES FOR A CHALKY SOIL IN SURREY (*J. Lang*).—APPLES: Margaret, Devonshire Quarrenden, Kerry Pippin, Cockle Pippin, Old Nonpareil, Sturmer Pippin.—PEARS: Citron des Carmes, Williams' Bon Chrétien, Beurré d'Amanlis, Louise Bonne of Jersey, Marie Louise, Winter Nellis, Joséphine de Malines.—PLUMS: Rivers' Early Prolific, De Montfort, Green Gage, Purple Gage, Coe's Golden Drop, and White Magnum Bonum. The branches of Spruce Firs will break again from their laterals if only shortened. It is much better, however, to thin a Fir-plantation by removing some of the trees than to prune them. We know no reason why the Wellingtonia ought not to do well with you.

HEATING A SMALL CONSERVATORY (*F. M. S.*).—We accidentally overlooked this inquiry. For such a small place (nine feet by six feet and a half) we think Carman's little stove you mention ought to answer; and, provided there is a funnel from it going outside the house, with proper management there need not be so much dust made with ashes. Sixty degrees near the stove give us no idea of the heat of the house, as, of course, the atmosphere would be the hottest there; but for common purposes, if the heat at night ranged from 40° to 45° at the farthest part from the stove, we should be perfectly satisfied. We have no faith, however, in any stove that burns any sort of fuel, prepared, or otherwise, if it has not a chimney-pipe to take the gases and smoke outside. We think that you might easily heat your conservatory from a large gas-burner in the room below. The burner being placed under an inverted funnel, and a one-and-a-half or two-inch pipe passing from the funnel round the conservatory, or twice or thrice along the front side, and then going out into the open air. We should like hot water better still, and as has been previously stated, a boiler of tin or galvanised iron about the size of a fair-sized teakettle, with a concave bottom, so as to hold but little water, and with a three-quarter-inch hole for a tube to be continued through the house, so that no heat be lost, would answer well for such a place. One two-inch hole near the top, and another near the bottom, to admit two-inch pipes of galvanised iron would do. Two of these being enough in the house if not very lofty. Galvanised iron pipes will stand a long time, if they do not rest on earth, but are supported on little blocks of wood. If placed on earth, or even on bricks, &c., they soon decay. If such a room below the conservatory had a fire constantly in use in winter, or if it were a kitchen scullery, or anything of that sort, if the boiler at the back of the fire were close, and supplied from a ball-cock cistern as high as the conservatory, two pipes fixed to the boiler with stop-cocks on them would be the easiest and most effectual means of heating the little conservatory. Some time ago a case came under our notice that answered well. The kitchen fireplace was fully thirty feet from the nearest point of the pretty greenhouse connected with the floor above. The boiler was previously a close one, and supplied by a cistern and ball-cock. Two holes one-inch diameter are near the top, and one near the bottom were drilled on the side farthest from the fire, and where, of course, no fuel came against them. These were filled with lead pipes of suitable size, and were bent and elbowed just as was required, before getting to the conservatory, requiring fully seventy feet of piping. There they were fixed to two-inch galvanised iron pipes, with a small open cistern at the farthest end. Taps near the boiler let the heat on as desired. In severe weather, placing the embers against the boilers the last thing at night, and putting a metal plate over them, gave quite heat enough. A correspondent the other week told us how well he succeeded with gas. We expressed a wish for more details, and hope if this meet his eye he will comply with our request, as every case in which such heating can be economically done, would so far encourage such small conservatories. When double the size of the one mentioned, and the place will admit of it, a small flue we consider best.

EXTENSIVE KITCHEN GARDENING (*J. Mann*).—Our "Kitchen Gardening for the Many," and "Allotment Farming for the Many," will give you all needful directions. It is quite impossible to state a probable balance-sheet for your undertaking, so much depends upon local prices, the cultivation pursued, and the seasons.

CUCUMBERS—PERILLA NANKINENSIS (*A Young Beginner*).—We would sow for use, *Sion House Improved*, smooth-skinned, and white-spined when it has any; and *Ayre's Perpetual*; and for show, *Hunter's Prolific* and *Munroe's Prolific*. Recollect, however, that much depends on the kind of fruit that seeds come from, and, therefore, those who are particular, try and save their own. *Perilla Nankinensis* has been introduced from China since *The Cottage Gardener's Dictionary* was published. It is used for its foliage, and for flower-gardening purposes should be treated as a half-hardy

annual. The seeds of it, and the Lobelia, may be procured of any respectable nurseryman and seedsman. So much has been said about it in *THE COTTAGE GARDENER*, that many thousands will be grown next season. With us, left to itself in fairish ground, it rose fully two feet or two feet and a half. At Lamport Hall, we noticed hundreds not above a foot high. We do not like cutting it, as that removes the most curly, pretty leaves at the points of the shoots.

PLANTING A ROSERY (S. E. L.).—No. 1 to be as you say. No. 4 must not be white or light Roses; 6 is the bed for the light ones, and 4 for the best dark purple Roses. The rest are right, except 5. No Mosses in the oval beds. Put Mosses in either 11, 12, or 14, and in 13 put mixed Tea Roses. Nos. 8, 9, 10, 15, and 16, well suited for one-half standards, and one-half dwarfs, the standards more towards the centre; but do not attempt to have one kind of colour in any of them, to avoid a repetition of the plan in the ovals round the centre.

SPERGULA PILIFERA (A Small Gardener).—The weed you enclosed is not the *Spergula*, but *Sagina procumbens*, or Pearlwort.

NAMES OF APPLES (C. A.).—The large Apple is the *Winter Pearmain* and the small one *Fenouillet gris*. The flower is *Justicia speciosa*, or Showy Justicia.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

DECEMBER 13th. NEWPORT (MONMOUTHSHIRE). Sec., Mr. C. H. Oliver, Commercial Street, Newport, Monmouthshire. Entries close Nov. 30th.

DECEMBER 28th and 29th. SHEFFIELD AND HALLAMSHIRE (Fancy Pigeons). Sec., Mr. Inman New, Sheffield. Entries close December 12th.

DECEMBER 28th and 29th. POULTON-LE-FYLDE. Sec., Mr. J. S. Butler.

JANUARY 2nd and 3rd, 1860. PAISLEY. Sec., Mr. Wm. Houston, 14, Barr Street. Entries close December 26th.

JANUARY 4th and 5th, 1860. PRESTON AND NORTH LANCASHIRE. Sec., Mr. Henry P. Watson, Old Cock Yard, Preston. Entries close December 17th, 1859.

JANUARY 7th, 1860. BRADFORD. (Single Cock Show.) Secs., Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford.

JANUARY 11th, 1860. DEVIZES AND NORTH WILTS. Sec., Mr. G. Saunders Sainsbury, Rowde, Devizes. Entries close December 24th.

JANUARY 31st and FEBRUARY 1st and 2nd. CHESTERFIELD AND SCARSDALE. Hon. Secs., Mr. J. Charlesworth, and Mr. T. P. Wood, jun. Entries close January 11th.

FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). Sec., Mr. W. Houghton. Entries close Jan. 14th.

FEBRUARY 29th, and MARCH 1st, 1860. ULVERSTONE. Sec., Mr. T. Robson.

N.B.—Secretaries will oblige us by sending early copies of their lists.

BIRMINGHAM POULTRY SHOW.

It will be a great satisfaction to our readers to know that the late meeting in Bingley Hall was one of the most successful ever held there. The receipts were £1126 5s. against £1034 in 1858. The number of visitors admitted was 45,952 against 42,389 in 1858. It is also very gratifying to find the experiment of admitting the working classes at a lower rate is eminently successful. The increase in this branch was £65 as compared with last year. Those who manage this great exhibition with so much zeal and intelligence are anxious all should enjoy the treat. The children of the different charity schools in the town were gratuitously admitted on the Wednesday morning. Those who have not seen this cannot imagine the delight of these young visitors; but none seem to take so much interest in it as the deaf and dumb children. This year a few of the officials formed a subscription, which enabled them to present every child on entrance with a small plum-cake.

THE Meeting at Birmingham has this year fully equalled the anticipations of even the most sanguine among the Committee of Management; for not only has the general quality of the poultry of each variety very considerably improved, but the number of visitors far exceeds those admitted on previous occasions. Although, as is ever the case, there were parties who foreboded, year by year, that public interest must gradually decrease—that when once a certain rate of excellence was attained in poultry no further improvement could take place—or that the premiums falling time after time into the possession of one or another of a small knot of successful breeders, the hopelessness of winning would prevent numerous entries—each and all of these despondents have received the most conclusive proofs that the Birmingham Exhibition still holds its high position; and, that so far from waning, the interest taken in all that pertains to it is even greater than heretofore.

It is most gratifying also to find that the more useful breeds of poultry seem to have improved most rapidly. When before

has it been possible to direct public attention to pens of poultry so extraordinary, as miracles of careful breeding, as the successful ones, whether Turkeys, Geese, or Ducks of all varieties, just exhibited at Birmingham? Turkeys 34 lbs. a bird; Geese above 30 lbs. each; and Ducks from 7 lbs. to even 8½ lbs. a piece, were to be found in the principal pens; and this great advance in size attained, too, without any deterioration of plumage whatever.

But still another peculiarity of the Show just closed bespeaks most powerfully how great and widely-spread is the interest now taken in poultry culture; for although some few of our well-known exhibitors appear, from too much confidence of success, to have this season fallen considerably in the rear, great numbers of the most prize-taking amateurs this year at Birmingham were hitherto unknown to poultry fame.

All the principal varieties of fowls at the present time are in the hands of many amateurs; they are continually to be met with, and that in districts of the United Kingdom in which, until lately, they were unknown. This general diffusion gives opportunities of testing the advantages of different localities on existing breeds, whilst careful crossing for table purposes has not been untried by agriculturists in most districts. It is remarkable how strongly these agencies have not only improved every description of fancy breeds, but certainly not less so those intended exclusively for customary market purposes. The hardiness of young broods as to constitution, and the comparative ease with which they are now reared, have tended to increase to an enormous extent the supplies at most of our market towns; consequently, numbers of parties to whom poultry was formerly an almost prohibited viand, simply from being "too expensive for a large family," are now in the almost daily enjoyment of this essential requisite to the comforts of the dinner-table.

Such, then, are some few of the many public advantages arising from the institution of Poultry Exhibitions. Emulation once engendered inevitably produces a better article, as much so in poultry as in manufactured goods; and thus progressive improvement takes place, whilst the demand keeps well up with the supply.

As I find your report fully describes most of the leading features in the late Show, it is only intended on this occasion to allude, very briefly, to some few incidents connected with it that may tend to direct the attention of its supporters to matters that otherwise might escape notice.

To any reflective amateur the immense amount of entries in the Dorking, Game, Cochín-China, and Spanish breeds would naturally suggest a proportionate improvement in the number of premiums allotted in coming years to these classes. Now, if the present revenue of the Society will scarcely admit of increased calls upon its coffers, surely the railway companies, to whom such a meeting is so profit-producing; the tradesmen of Birmingham, who derive so greatly-increased a sale of their goods during its continuance; and lastly, though by no means least, the licensed victuallers, to whom it is a perfect hay-time, would, I think, most willingly give a hearty support by the gift of premiums of higher value; or, what would encourage exhibitors still more, by offering a greater number of prizes. There cannot possibly be any sufficient reason assigned why there should not be a licensed victuallers' piece of plate for the best Game; a tradesmen's cup for the best Dorkings; or a first-rate premium from the railway companies generally for the best collection of poultry sent by one exhibitor, and so forth. Such premiums would inevitably arouse still greater competition among the rivals themselves, and at the same time conduce immeasurably to the interest of the public to examine for themselves the relative merits of the poultry competing. I firmly believe that none would be the losers by the experiment; for improved attendance of visitors would to all such benefactors bring only still more grist to their mill, for the benefit would extend itself to all.

It may be said, all these parties may equally support the institution by simply adding their names to the annual subscription list. Many of late have doubtless done so, as the greatly-augmented amount of subscriptions testifies; but there are those whose energies would be far more positively aroused by the plan now suggested, from a spirit of emulation, that the premiums offered by their profession should not fall short in actual value to those proffered by other tradesmen.

A succinct review of some few of the best classes may be acceptable. No doubt the *Spanish* were excellent specimens; but, in most instances, the lack of condition was far greater than customary—the effect, no doubt, of the late variable weather. It is most gratifying to state that "trimming" was scarcely to be met with

in a single instance, and so it should be: this most desirable effect has only been produced by the firm determination of our principal poultry judges not to compromise the matter in any such cases, but disqualify at once from competition. I, for one, trust these gentlemen will rigidly persevere in such regulations, so as to ensure the prizes being taken at least by honest competition.

The birds of Mrs. Hall, in the first-prize pen for adults, will exhibit far more favourably a month or two to come; whilst Mr. Hyde's Spanish pullets were most covetable specimens, and, doubtless, they will be again heard of in the ranks of the successful. Messrs. Teebay's and Rake's Spanish chickens will, if they progress favourably, be awkward competitors to shake off at any meeting.

The *Grey Dorkings* were as greatly improved as could be imagined, Captain Hornby still keeping a-head, though closely elbowed by the "Silver Greys" of Mr. Wm. Bromley; who, in pullets of this variety, showed such as any amateur might well covet, and were certainly the best of this particular colour ever yet exhibited. It is quite evident "Silver Greys" can now hold position, even as to *size*, with any of the darker colours—a feature that only a few seasons since was deemed impracticable.

Perhaps none of our poultry have improved more rapidly during the last two years than the *Cochins*. They have returned entirely to their original characteristics; and it is exceedingly questionable whether Messrs. Tomlinson, Stretch, Felton, Cattell, Lamb, Chase, and Cartwright, did not exhibit specimens quite equal to any ever yet placed before the public eye.

The *Polands* were very limited in point of numbers, nor was their excellence remarkable; breeders must really use a far greater amount of energy if these prizes are to be continued, for these classes at present almost invariably entail losses on Poultry Committees. It is a great pity that *Polands* should be thus neglected, for they naturally combine the advantages of beautiful plumage with great utility.

Saving the Pencilled varieties, the *Hamburgs* were not especially good. In Pencilled ones, however, the Show figured very highly.

Birmingham never before had so good *Game* classes, and the entries for *Game Bantams* were, undoubtedly, among the best in the Show.

The classes for *Single Cocks* were all of them well filled with the best of birds.

Among as rich a collection of *Pigeons* as any ever exhibited, either at Birmingham or elsewhere, one of the greatest curiosities was *Yellow Fantails*. This is their first appearance.

Independently of visitors paying for admission, all the charity schools were allowed a view gratuitously, besides the creature-comfort of a good bun, to still further increase the happiness of each little one. It was a joyous sight, and a step forward towards increased popularity. Great praise is the just due of the managers, for the excellent order and regularity carried out in every department of this extraordinary meeting.—CHANTICLEER.

POULTRY SHOW AT ARUNDEL.

WE believe we are correct in stating that this place is the only one where premiums are offered for fat cattle brought into the open market. This may account for the great display of beautiful *Sussex* oxen, and for the numbers of people that thronged the place on the Christmas market-day—Tuesday, December 6. Seeing the hundreds of thousands of money that annually go into *Sussex* in exchange for the poultry sent to London, it is not wonderful it should have been deemed necessary to have a Poultry Show at the same time. It was held last year for the first time, under the patronage of the Duke of Norfolk, who also gives the *Dorking* prizes. The Corn Exchange provides a convenient place; and pens of the most approved construction being provided, it is a comfortable, well-conducted, successful little Show. We last week had occasion to notice the small beginning of Birmingham; and we believe we shall make some of our readers smile when we tell them the birds are received between the hours of eight and ten in the morning, they are judged between ten and twelve, the public admitted at the latter hour till two at 6d., and from two to four gratis. At four o'clock all birds are removed.

It will easily be believed that in this county *Dorkings* would be good; and thirteen pens that would not have passed unnoticed at Bingley Hall were entered. Lady Louisa Thynne gained first and second prizes. The three birds in the first-prize pen weighed

25½ lbs. The second were nearly as heavy; and the third, the property of Mr. Smith of Littlehampton, were only behind from the fact of one pullet being inferior to the others. The *Cuckoo Dorkings* were not numerous, nor were they as large as we expected to see them. Mr. Penfold, of Arundel, was the prize-taker. These birds have evidently gone out of fashion, or they would have been better represented in the county to which they belong. The *Spanish* were excellent, both in the young and in the old classes. There were birds shown that need fear no competition. There were twenty-one pens. The Rev. W. G. Holmes took first; Mr. W. R. Bull second for adults. Lady Louisa Thynne and Mr. Bull were similarly distinguished in chickens. Six other pens were commended. This breed is evidently appreciated and understood in this part of the country. Messrs. Bushby and Boniface deserved their prizes by the excellence of their *Game Fowls*, especially the former; but some of the exhibitors have to learn that the legs of the fowls composing a pen *must* match, or they cause disqualification. There was also in this class a humpbacked hen, spoiling an otherwise meritorious pen. It is also necessary to point out that, although this class is open to birds of any colour, yet the cock and hens must be of the same breed: Black-red hens will not mate a Duckwinged cock. There was one class only for every sort of *Hamburg*. Mr. Isemonger was the prize-taker with Silver-spangles. Here, as at many larger shows, drooping and loose combs were far too prevalent. The *Cochin-Chinas* were poorly represented. Mrs. Bull gained the prize with white birds. Lady Louisa Thynne showed some beautiful *Sebrights*, which deservedly took a first prize. Mr. Blunden was first in *Aylesbury Ducks*, with very good birds; followed by Mr. Boniface, who had the second prize.

This pleasant little Show was very fully attended by the gentry and others of the neighbourhood and town as soon as it was opened; and it was amusing and satisfactory to find how many exhibitors made it a sort of trial for the merits of their respective birds, many of which are intended to try conclusions on a larger scale at the Crystal Palace.

Messrs. Bull, Harman, Roberts, and Blunden were all at their posts; and the exhibition seemed to them, as to the visitors, a holiday. Coupled with the Christmas market, it seemed a sort of harbinger of the merry time.

Mr. Bailly, Mount Street, Grosvenor Square, was the Judge.

MR. WRIGHT'S SPANISH PULLET.

MR. BRENT's reply respecting the Spanish pullet is so full of absurd suppositions, and bears throughout such an egotistical tone, that I cannot refrain from echoing "JUSTITIA'S" remarks. Why, sir, to my certain knowledge, this pullet is one of three in pen 260 (Birmingham Show) at the present moment of my writing (November 30th); and as regards Mr. Brent's arguments about the unnoticed change, &c., they are simply the extricating wriggles of a netted captive, too ridiculous to obtain credence, and too insinuatingly presumptive to create sympathy by those who would have received a candid acknowledgment of his error as much more satisfactory evidence of his knowledge in these matters.—I. H.

I EXAMINED the pullet that Mr. Brent called a cockerel, with Mr. Wright at the Crystal Palace Poultry Show, and I am quite convinced that it was a pullet, whatever Mr. Brent may say to the contrary. I had one myself this season just like it with a cock's tail; but when she moulted she came out with her tail all right.—JOHN RODBARD RODBARD, *Aldwick Court, Wrington, near Bristol*.

[Here this controversy may terminate. Mr. Brent thought that the pullet was a cockerel, but he seems to have been mistaken; and no one ought to continue to dispute the testimony of the owner, sustained as it is by the judgment of Mr. Rodbard, and two or three other judges we have consulted.—EDS.]

BLACK-BREASTED-RED GAME FOWLS.

MR. B. P. BRENT, at the conclusion of a recent communication says,—“I have my doubts if Brown-breasted-Reds are a pure colour or a composite, some persons use the terms Black-breasted-Reds, and Black-reds as synonymous. But the first is a pure or original colour, while the latter is a cross between Red and Black.” With regard to the Brown-reds, I believe them to

be pure, and would take them to be so before any variety of Duckwings. But, what upon earth can Mr. Brent mean when speaking about Black-breasted Reds? The true Black-breasted-Red, or, as it is known as Black-red for shortness, is, I have no doubt, a pure colour. But then there is another variety of Black-breasted-Reds—the result of a cross between a brown-red and fawn-colour hen, and known by the name of Black-breasted-Red, or Bright-red, on account of its being lighter in colour than the true Black-red. The Bright-red at most exhibitions takes the prizes by being a little more showy; but the absurd notion that a Black-red was the result of a cross between red and black is so ridiculous, that it cannot be entertained for a moment. I am convinced that Mr. Brent knows nothing about Game fowls.—D. P., *Hull, Yorkshire.*

PIGEON PRIZES AT BIRMINGHAM.

AGAIN have the inhabitants of the midland metropolis and surrounding districts been gratified with the sight of a magnificent show of Poultry and Pigeons. The latter, though, somewhat marred by the erroneous and inconsistent decision of the Judges; to some few of which, with your permission, I will call the attention of your readers, beginning with Cup No. 1. (Carriers, Almond Tumblers, and Powters.) The Powters (white), one bull-eyed; the other gravelly-eyed, stained beak and tail. Class 2. (Almond Tumblers.) Second prize. Almond cock and Almond splash hen. Class 13. (Archangels.) Second prize given to *Persians*, No. 1511 being a good pair of Archangels, Highly Commended. Class 12. (Turbits.) Second prize given to birds with (in lieu of a turn crown) a tuft of feathers at the back of the head forming a point. In Mottled Tumblers, First and Second prizes given to birds far inferior to Pen 1462, Highly Commended. Class 15. (Runts.) Second prize given to a pair of birds one of which was marked—viz., a flight feather notched from the quill to the point. This, I apprehend, should, under any circumstances, have disqualified the birds.

Being an exhibitor, I purposely avoid any comparison between prize birds and others in classes containing any of my own.—J. PERCIVALL.

First. Should White Powters be bull-eyed or gravelly-eyed?

Second. Are Archangels and *Persians* the same, or distinct varieties?

I ask these questions because the Powters to which the Silver Plate was awarded at Birmingham are odd birds, one bull-eyed, the other gravelly; and in the Archangel class, the first-prize birds are Archangels, the second-prize *Persians*. Both I take it cannot be right.—A NOVICE.

MAY Almond-splash Tumblers be exhibited as Almonds? At our Show the Second prize was awarded to an Almond cock, and an Almond-splash hen. Surely this cannot be right.—PATER-FAMILIAS.

DARLINGTON POULTRY SHOW.—DECEMBER.

WE will publish our comments next week. Judge—Edward Hewitt, Esq., Eden Cottage, Spark Brook, Birmingham. The following are the awards:—

SPANISH (Black).—First, H. F. Wells, Aldborough Hatch, Ilford, Essex. Second, H. W. B. Berwick, Helmsley, York. Highly Commended, S. Burn, East Terrace, Whitby. Commended, R. Simpson, Scots House, West Boldon. *Chickens*.—First, R. Simpson, Scots House, West Boldon. Second, H. T. Wells. Highly Commended, S. Robson, Pocklington; H. T. Wells, Aldborough Hatch, Ilford, Essex.

DORKINGS (Coloured).—First, S. Burn, Whitby. Second, H. W. B. Berwick, Helmsley, York. Highly Commended, S. Pickard, Dintear House, Wakefield; Rev. J. F. Newton, Kirby, Stokesley; W. Grey, Darlington. Commended, J. Graham, West Jesmond. *Chickens*.—First, H. W. B. Berwick, Helmsley, York. Second, Rev. J. F. Newton. Highly Commended, M. Hunter, Green Hammerton Hall. Commended, J. Graham; Mrs. A. C. Puckleine, Crake Hall, Bedale.

DORKINGS (White).—First, A. Pease, Southend, Darlington. Second, withheld. *Chickens*.—First and Second, A. Pease, Southend, Darlington.

COCHIN-CHINA (Cinnamon and Buff).—First, W. Dawson, Hopton, Mirfield. Second, W. Harvey, Bank Buildings, Sheffield. Highly Commended, G. S. Simpson, Hunmanby. Commended, W. B. Berwick, Helmsley, York. *Chickens*.—First and Second, Rev. G. Gilbert, Claxton, Norwich. Highly Commended, G. S. Simpson, Hunmanby. Commended, W. Harvey, Bank Buildings, Sheffield.

COCHIN-CHINA (Brown and Partridge).—*Chickens*.—First and Second, J. Bell, Thirsk.

COCHIN-CHINA (White).—Prize, W. Dawson, Hopton, Mirfield. *Chickens*.—First, W. Dawson, Hopton, Mirfield. Second, G. C. Whitwell, Kendal. Commended, W. Harvey, Bank Buildings, Sheffield.

GAME (Blacks, Black-breasted-Reds, and other Reds, and Brassy-winged).—First, H. Adams, Beverley. Second, E. Ackroyd, Darlington. Highly Commended, R. Tate, Driffield. Commended, J. Bell, Seaham. *Chickens*.—First, H. Adams, Beverley. Second, H. M. Julian, Market Place, Beverley. Highly Commended, T. Cleminson, Hill House, Darlington; T. Dodds, Ovenden, Halifax.

GAME (Duckwings, Greys, and Blues).—First, H. Adams, Beverley. Second, Messrs. Bird and Beldon, Eccleshill Moor, Bradford. *Chickens*.—First, J. H. Smith, Skelton Grange, York. Second, Messrs. Crawford and Raylor, Hunmanby. Highly Commended, J. Crossland, jun., Wakefield; H. Adams, Beverley. Commended, R. Tate, Driffield.

GAME (White and Pile).—First, G. S. Thompson, Fairfield, York. Second, J. Crossland, jun., Wakefield. Highly Commended, H. Adams, Beverley. *Chickens*.—First, H. Adams, Beverley. Second, Mrs. N. Ringrose, Carnaby Pasture, Bedale. Highly Commended, G. S. Thompson, Fairfield, York.

HAMBURGS (Golden-pencilled).—First, Messrs. Bird and Beldon, Eccleshill Moor, Bradford. Second, J. Dixon, Bradford. *Chickens*.—First, J. Dixon, Bradford. Second, Messrs. Bird and Beldon, Eccleshill Moor, Bradford.

HAMBURGS (Silver-pencilled).—First, J. Dixon, Bradford. Second, R. Tulip, Monkwearmouth Shore. *Chickens*.—First, J. Dixon, Bradford. Second, J. Falkiner, Hunmanby.

HAMBURGS (Golden-spangled).—First, H. Adams, Beverley. Second, Miss M. G. Smith, Dinsdale Rectory. Highly Commended, J. Dixon, Bradford. Commended, S. Pickard, Dintear House, Wakefield; J. Mitchell, Hipperholme, Halifax. *Chickens*.—First, M. Cooper, Helmsley. Second, W. Horner, Newsham, Thirsk. Commended, Miss M. G. Smith, Dinsdale Rectory.

HAMBURGS (Silver-spangled).—First, J. Mitchell, Hipperholme, Halifax. Second, Messrs. Bird and Beldon, Eccleshill Moor, Bradford. *Chickens*.—First, J. Bell, Thirsk. Second, R. Tate, Driffield. Highly Commended, Messrs. Bird and Beldon.

POLANDS (Black with White Crests).—First, J. W. Boothby, Holme Cottage, Louth. Second, J. Dixon, Bradford. Commended, J. Dixon.

POLANDS (Golden).—First and Second, J. Dixon, Bradford.

POLANDS (Silver).—First and Second, J. Dixon, Bradford. Highly Commended, Messrs. Bird and Beldon, Eccleshill Moor, Bradford.

POLANDS (any variety).—*Chickens*.—First and Second, J. Dixon, Bradford.

ANY OTHER DISTINCT BREED.—First, W. Harvey, Bank Buildings, Sheffield (Brahma Pootras). Second, W. Dawson, Hopton, Mirfield (Sultans). Highly Commended, J. Dixon, Bradford (Buff Polands); Messrs. Bird and Beldon, Eccleshill Moor, Bradford (White Polands); R. Tate, Driffield (Black Hamburgs). Commended, J. Crossland, jun., Wakefield (Malays).

BANTAMS (Gold-laced).—Prize, W. Horner, Newsham, Thirsk.

BANTAMS (Silver-laced).—Prize, W. H. Chaffer, 45, Sylvester Street, Hull.

BANTAMS (White).—Prize, J. Foreman, Thorn's Lane, Wakefield. Highly Commended, S. Pickard, Dintear House, Wakefield.

BANTAMS (Black).—Prize, J. Foreman, Thorn's Lane, Wakefield. Highly Commended, J. Bales Northallerton.

BANTAMS (Game).—Prize, J. Foreman, Wakefield. Commended, Rev. J. Bowden, Thurgoland Parsonage, Sheffield.

DUCKS (Aylesbury).—First, G. B. Scotson, Haughton-le-Skerne. Second, A. Pease, Southend, Darlington. Highly Commended, Mrs. N. Ringrose, Carnaby Pasture, Bedale.

DUCKS (Rouen).—First, Miss H. Chaytor, Clervaux Castle. Second, H. W. B. Berwick, Helmsley, York. Highly Commended, J. Dixon, Bradford. Commended, Miss A. Winn, East Witton Mill, Bedale.

DUCKS (any other variety).—First, W. Dawson, Hopton, Mirfield (Sheldrake Ducks). Second, J. Dixon, Bradford (Mandarin Ducks). Highly Commended, M. Hunter, Green Hammerton Hall (Black Beunos-Ayrean Ducks); J. Dixon, Bradford (Grey Call Ducks); S. Burn, Whitby (Black East Indian). Commended, Miss E. Laing, Haughton-le-Side (Muscovy Ducks). *Ducklings*.—First, Mrs. N. Ringrose, Carnaby Pasture, Bedale. Second, A. Pease, Southend, Darlington. Highly Commended, Miss Lambert, Neasham Springs; C. Lieroe, Catterick.

GESE.—First, J. Dixon, Bradford (Toulouse). Second, Mrs. Wooler, Barwick, Yarm. Commended, A. Pease, Southend, Darlington (Toulouse). *Goslings*.—First, Mrs. Wooler. Second, R. Tate, Driffield. Highly Commended, A. Pease.

TURKEYS.—First, J. Dixon, Bradford. Second, W. Dolby, jun., Syston Hall, Grantham. Highly Commended, A. Pease, Southend, Darlington (American). *Poultis*.—First, W. Dolby. Second, A. Pease (American). Highly Commended, Mrs. N. Ringrose; H. Marshall, Sand's House, Durham. Commended, J. B. Booth, Killerby, Catterick; Miss Wetherell, Aldborough.

GUINEA FOWL.—Prize, Miss Foster, Cliffe, Piercebridge.

PIGEONS: *Carriers*.—First, J. Crawford, 65, Hendon Street, Sunderland. Second, N. B. Wetherell, Seaton Carew. Highly Commended, F. Newburn, jun., Larchfield, Darlington; W. Cannan, Bradford. *Tumblers*.—First, W. Cannan, Bradford. Second, E. Archer, jun., Westbourne Villas, Forest Hill, Kent. Highly Commended, F. Mewburn, jun. *Powters* or *Croppers*.—First, P. Mewburn, jun. Second, W. Cannan. *Fantails*.—First, F. Mewburn, jun. Second, S. Robson, Pocklington. *Trumpeters*.—First and Second, F. Mewburn, jun. Highly Commended, F. Mewburn, jun.; J. Morrell, Sunderland. Commended, R. Clarke, jun., Market Place, Beverley. *Barbs*.—First, W. Cannan. Second, N. B. Wetherell. Highly Commended, M. Hunter, Green Hammerton Hall. *Jacobins*.—First, —Statters, Beverley. Second, H. Morris, Forest Hill, Kent. Highly Commended, R. Tate, Driffield; H. Tomlinson, Balsall Heath Road, Birmingham. *Turbits*.—First, F. Mewburn, jun. Second, H. Morris. Highly Commended, S. Robson, Pocklington. *Owls*.—First, W. Cannan. Second, H. Morris. Highly Commended, G. W. Boothby, Holme Cottage, Louth; F. Mewburn, jun. *Dragoons*.—First, F. Mewburn, jun. Second, J. Crawford, Hendon Street, Sunderland. *Archangels*.—First and Second, F. Mewburn, jun. *Runts*.—First, W. Cannan. Second, R. Clarke, jun., Market Place, Beverley. Highly Commended, F. Mewburn, jun. *Nuns*.—First, J. J. Wilson, Darlington. Second, W. Summerson, Haughton-le-Skerne.

EXTRA STOCK.—Prize, F. Mewburn, jun. (Yellow Magpies).

CROSS BETWEEN THE PHEASANT AND BANTAM.

SEEING in your Number of *THE COTTAGE GARDENER* of November 8, this year, a communication from "G. J. L." relating to the cross between the Pheasant and Bantam, your correspondent can obtain information by application to Captain Glinn, R.N., Hereford, who breeds them yearly, and is now in possession of a cock Pheasant and a Game Bantam that produced thirteen chickens last year; and the hen Pheasant running with them produced eggs, and a brood of nine young Pheasants from them, hatched under a common hen.

The eggs were picked up in various places in a walled enclosure, and not in a nest as a fowl. This latter remark alludes only to the hen Pheasant's eggs.—C.

DRONE BEES.

YOUR aparian readers may know that the appearance of drones forebodes swarming; but, also, that first swarms sometimes leave the stocks before they are bred or appear abroad. I spoke of this some years back to Dr. Bevan, who agreed with me that first swarms are sometimes without drones. This led to a further discussion respecting the eggs of drones being laid by the old queens, both in the stocks and the other colonies which they establish during the season. Likewise on the fact of a second brood of drones sometimes appearing in autumn in old stocks which swarmed at the usual time. This shows that queens of the present season have power to deposit eggs for drones, and accords with the rule of swarming in warm climates. But I am not sure if those remarks can have reference to the males of the "Ligurian or Italian Bees," which "A DEVONSHIRE BEE-KEEPER" is trying to establish in this country, for which he deserves much praise. "B. & W." speaking of them at p. 76, observes, that the "drones which join the swarms are generally, perhaps always, allowed to remain alive till late in the season, whereas the earliest-hatched drones are frequently destroyed in cold springs in their own hives." Whatever kind of drones he meant, I have to note that in cold springs none are bred in the hives of the "honey bee;" and those that join the second and after swarms are, of course, destroyed about the usual time with the rest left behind in the stocks; while those in the first swarms are spared a little longer, especially in strong hives, when the bees meditate swarming. In these, the same process of rearing drones goes on as in the stocks during the fore part of the season. Some, however, imagine that the old queens only lay drone eggs about the time that they quit the stocks. But I have known them lay both kinds of eggs at the same time; and with regard to the remarks of "B. & W." on drones, he is speaking of making artificial swarms of the "Italian bees," with a view to increase them, and justly observes that it should be done when their drones are numerous, as without them the plan must be fruitless.

I may here say a word in favour of poor drones, for almost all writers have a *fling* of abuse at them. For instance, the Rev. E. Scudamore, in his little treatise on making artificial swarms, speaking of them at p. 35, observes, that "the bee-masters may, perhaps, find a few drones not hatched, but sealed up in their cells like ancient monks in their cloisters." This but ill accords with the true character and use of the insects, but known to the bees themselves. However, their presence at certain times is as essential to the prosperity of the colony as that of the workers; nay, even of the queen which is so highly spoken of, but whose instinct is not equal to that of the queen of the wasp.—J. WIGHTON.

OUR LETTER BOX.

GAME FOWLS WEAKLY (*J. R., Glasgow*).—Feel your bird's crop, and see if there is any food hardened in it. If there is, pour warm water down its throat till it is softened, and then give a table-spoonful of castor oil. Give the same dose if there is not, but omit the water. Feed on ground oats slaked with milk; feed often; give *very* little at a time. The castor oil will probably bring away green slimy evacuations. Repeat the dose every third day till these cease; then feed freely, but little at a time. It is not well till it is hungry, and looking for its food.

GUINEA FOWLS (*Constant Reader*).—We have never found that cock Guinea Fowls have the propensity you dread of destroying their mates' eggs. The greatest difficulty is to find the nest of the hen, as she generally steals it in some out-of-the-way or distant place. We have found one a quarter of a mile from any house. You might, however, make yourself secure by confining the male while the hen sits. This, as you probably know, is done with many kinds of poultry.

OVER-FEEDING A GAME COCKEREL (*J. M. K.*).—Your bird with drooping tail and general weakness is suffering from indigestion, consequent on

most improper feeding on chopped beef boiled in milk. If a bird should be trained at all for exhibition, the process should be, allowing for difference of man and bird, such as you would adopt if you were about to run or fight: as much hard muscle as possible, no fat, and good appetite. You will do no good till you have thoroughly cleansed it. We fear it is too weak to have a full dose, and therefore advise a tea-spoonful of castor oil directly. When this has operated, feed on oatmeal slaked with warm water. You must use discretion in repeating the dose; but as soon as it is able to bear it give it a table-spoonful. This must be continued till it is hungry, till it carries its tail up, and looks after its food. If at any time it appears weakened by the medicine, give it some bread and ale. When it is brisk and hungry give it oatmeal, stale bread, and a few pieces of raw beef once a-day. The latter is against all sound practice, but it may enable you to get it up for exhibition: under no other circumstances would we advise it.

PARING A CANARY'S NAILS.—"In your remarks on the Canary Show at the Crystal Palace you mention my bird (No. 54), was much inconvenienced by long nails. Regulation No. III. forbids cutting and trimming. Does that refer to the nails? and can I cut them and not violate the rule?"—W. YOUNG.

[We shall be obliged by some one giving us an answer to this query. It seems to us that such a paring of the nails, being merely for the bird's comfort, would not violate the rule.]

DORKING CHICKENS AT THE BIRMINGHAM SHOW.—"Allow me to correct a misprint in your last week's paper. It there says the third prize for Dorking Chickens at the Birmingham Show was awarded to the Rev. J. Shaw. Allow me to say I am a tenant-farmer, not a Reverend.—JOHN SHAW, *Hunsbury Hill, Northampton*."

GINGER-SPANGLED POLES—WHITE BANTAMS (*E. H.*).—Each pen at the Crystal Palace, should consist of a cock and two hens or pullets, according to the class in which they are shown. We have not the prize list before us, but if there is a class for "Any other Variety" of Polands, these birds should be shown in it. If there is no such class, then they should be in that for "Any other Variety." We have never seen such as you describe, but the feathers sent are very beautiful, and we shall not fail to look for them. We believe there is only one class for White Bantams, choose them as small as you can, and the cock with long-flowing tail. Recollect, if there are classes for adult Polands, and for birds of 1859, you must enter yours for the latter, as they would be disqualified if shown in the adult class.

VARIOUS (*D. B.*).—The time when Hamburgh pullets commence laying depends much on the mode of feeding, and we are opposed to all stimulants to induce laying. If fed well, and in perfect health, your pullets will in all probability lay within a fortnight or three weeks. Feed well on ground food, oats ground fine are the best, slaked with water. Let them roost in a dry, sheltered place, and keep them scrupulously clean. Any white in the legs of a Silver-pencilled Hamburgh cock is a disqualification, but a difference of shade is not so important, especially in a chicken. We know of no shows in the south, but the Crystal Palace and Devizes.

AYLESBURY DUCKS (*Young Exhibitor*).—We need not tell you we are not in a position to explain the decisions of any judges. We can give you the rules by which Aylesbury Ducks are judged, and our own opinions respecting those we saw at Birmingham. The bills should be flesh colour. The birds as heavy as may be joined to length, breadth, and symmetry; and the weight not made up of mere fat. It may be that Mrs. Seamons and Mr. Fowler showed the same birds at Birmingham that they did at Worcester; but the impression that caused us to wonder they should exhibit faulty birds at one place would lead us to think they would not do so again. The protuberance of which you speak, and which is a sort of ridge at the insertion of the bill in the head is common to drakes of more than a year old. We think nothing can show the scrupulous care with which they were judged more than the fact that the extra tinge in the bill of Mrs. Seamons' drake lost her the first prize, to which she would have been entitled by weight.

DEVIZES POULTRY SHOW.—We hear that there is to be a class for "Single Malay Cocks" at this Show, although we have no notice from the Secretary on the subject.

PURCHASING BEES (*A Beginner in Bee-keeping*).—It is much easier to take a wrong step at the commencement of bee-keeping than to rectify it afterwards. The sum named to you for a stock-hive (25s.) may be either too much or too little, according to circumstances of which we are not informed, as age, weight, &c.; for a really good stock it is cheap enough. As respects "some criterion by which the reasonableness of the offer may be tested," we do not know that we can do better than quote the words of the late Mr. Payne in his "Bee-keeper's Guide." "The best time," says he, "to establish an apiary is from the middle of February to the middle of March; the stocks will have passed the winter, the combs are then empty of brood, and the removal safe and easy. Stocks should be selected by a competent judge, as the weight alone cannot be relied upon. A swarm of the preceding year should be selected, and one that contains not less than 12 lbs. of honey. There are few commodities in which a person can be so easily deceived as in a hive of bees. If the hive is not of the preceding year its weight is no criterion of its value; for an old hive always contains a large quantity of the pollen of flowers—a very heavy substance, and an essential ingredient in the food with which the bees nourish their young, but good for nothing else." As you possess "Bee-keeping for the Many," you will there meet with instructions on other points of practice to be attended to. If you will refer to our own recent columns, you will find at page 30, under the head of "Usual Honey-harvest and Store for the Winter," some concluding observations in connection with the subject of the weight of hives in autumn from which you may derive further assistance, always keeping in mind the difference between an old and a recent stock in comparing the respective weights. After the first season the combs become much darker as well as heavier, owing to increased thickness and consequent contraction, occasioned by the accumulation of filmy deposits and exuviae left by a constant succession of young bees bred in them. If you are well satisfied that all the requirements of a good stock-hive are fulfilled in your purchase, it may be removed at any time in the winter with care; best by hand secured in a coarse cloth. As to your location "within half a mile of the sea," the disadvantage of this is influenced very much by the nature of the immediately surrounding district in regard to vegetation and bee-pasturage; but exposure to wind should be provided against under any circumstances.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	DECEMBER 20—26, 1859.	WEATHER NEAR LONDON IN 1858.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
20	Tu	Erica pinnea.	29.677—29.542	46—38	S.W.	.04	5 af 8	50 af 3	17 4	26	2 19	354
21	W	ST. THOMAS.	29.732—29.557	52—43	S.W.	.03	6 8	51 3	38 5	27	1 49	355
22	Th	Sun's declin. 23° 28' s.	29.742—29.628	49—41	S.W.	.01	7 8	51 3	52 6	28	1 19	356
23	F	Erica gracilis.	29.600—29.157	51—37	S.W.	.04	7 8	52 3	55 7	29	0 49	357
24	S	Diosma ericoides.	29.516—29.475	47—31	S.W.	.01	7 8	52 3	sets	☉	0 19	358
25	SUN	CHRISTMAS DAY.	29.658—29.335	45—30	S.W.	.25	8 8	53 3	54 a 4	1	0 bef. 11	359
26	M	ST. STEPHEN.	29.376—29.220	48—37	W.	.17	8 8	53 3	7 6	2	0 41	360

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 41° and 32.3°, respectively. The greatest heat, 58°, occurred on the 25th, in 1827; and the lowest cold, 9°, on the 22nd, in 1855. During the period 137 days were fine, and on 87 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

CONTINUE to keep the supply of heat and moisture at the lowest degree compatible with the safety of the plants from frosts. In damp, foggy weather, a gentle fire to be applied occasionally during the day to expel moist, stagnant air.

CALCEOLARIAS (Herbaceous).—To be shifted into larger pots if they require them, to be kept near the glass, to be watered moderately through a fine rose, and on no account to be allowed to get thoroughly dry. To be careful when removing decayed leaves, not to pull or to cut them off too close to the stem, by which the flower-shoots would be very likely to get injured.

CAMELLIAS.—Great care is necessary that they may not be exposed to great alternations of temperature, which are sure to cause them to drop their flower-buds. The great reason why flower-buds very often fall off without properly coming into bloom, is the too sudden changes in the temperature to which they are exposed. For instance: when the buds are nearly ready to expand, a sudden heat causes them to push too rapidly; and, on the contrary, a decrease of warmth at the time checks their growth, and in other cases causes them to fall. The heat required to expand the blossom-buds is about 60° by day, and 50° by night. If this be attended to, the plants will continue in flower for a great length of time, as the plants in that heat are not excited to grow. A little weak manure water to be given occasionally to the blooming plants.

CHRYSANTHEMUMS.—When they begin to fade, to be removed to the north side of a wall or fence, the pots to be plunged in old tan, leaves, or sawdust, to protect them from the severity of winter.

CYTISUSES.—Place them and other such early-flowering plants in the coldest part of the house, where they may receive plenty of air at all favourable opportunities.

ORANGE TREES.—These, or other such plants that have not been recently potted, to be surfaced by removing a little of the top soil and supplying its place with fresh. Attention to be paid to keeping the leaves clean and healthy.

STOVE AND ORCHID-HOUSE.

ALLAMANDAS.—Continue the temperature and treatment as lately advised. To be potted, as also *Stephanotis*, &c., and trained preparatory to starting them into growth, about the beginning of the new year.

FORCING-PIT.—Introduce such plants as are generally used for forcing, especially the sweet-scented sorts, Lily of the Valley, Sweet Briar, Lilacs, some of the Tea, Bourbon, or Hybrid Perpetual Roses, and bulbous plants.

IXORAS.—To be elevated near the glass to set their bloom, and to have plenty of air at favourable opportunities.

FORCING-HOUSES.

PEACHES.—It is becoming very much the fashion to have Peach and some other sorts of fruit trees which are

wanted for early forcing in pots, and the plan is so far good, that it affords the advantage of being able to give the roots a mild, regular bottom heat, which is of the greatest importance in early forcing. Those who have good established trees, in pots, may now start them in a moderate heat. Air to be given liberally in favourable weather, and the syringe to be used freely over them morning and evening. The surface soil to be stirred up and kept open, and a supply of manure water to be given previous to starting them.

POTATOES.—Plant some sound, whole sets, singly, in three-and-a-half-inch pots, to be placed at the back of a Pine-pit, or in any other place where there is some heat, they will, in due time, be useful for planting out in the exhausted Asparagus-frames or pits.

PINES.—Continue the same treatment as lately advised.

VINES.—When started and until the buds are fairly broken, endeavour to keep the points of the shoots nearly on a level with the lowest part of the Vine, and if that should not be found sufficient to induce the buds to start regularly throughout the whole length of the Vine, the rod should be bent so as to bring the most forward buds to the lowest level, and elevating those that are backward. A moist atmosphere to be kept up by sprinkling the floor and paths, and by syringing the Vines lightly every morning and evening until the leaves begin to appear, when the supply of moisture will not be so much required. Introduce a lot in pots to some house, pit, or frame prepared with leaves or manure, if not done as advised last week. In such a place they will be found to start with advantage. At first, Vines in pots are most useful for early work, as they, in many places, save the established Vines in houses, from the hazardous operation of early excitement.

WILLIAM KEANE.

ROSES FROM GRAFTS AND ROSES FROM CUTTINGS.

“A BIRD in the hand is worth two in the bush;” and a fact accomplished is more safe for guidance than a principle surmised. The longest gardener in all Yorkshire has taken the shortest method in the country to fill up the rosery at the York Cemetery with hundreds of the freest perpetual kinds, and at the least possible expense. He bought over one and a half thousand of Manetti-stocks at a public sale for three-halfcrown pieces. The rosery, or the beds for the Roses, were not made this time last year. He grafted the stocks in-doors by the fireside last March; and he reports in the last week's number of THE COTTAGE GARDENER a first season's growth—and such a season!—over four feet in length of shoot on some of the strongest of the free-growing Perpetuals! At the very moment this intelligence reached London the gardeners at the Experimental Garden were re-arranging the mass of Roses which they succeeded in rearing from winter cuttings for the last three or four years; and thus we had two well authenticated points for the degrees of comparison between grafting Roses and rearing Roses from winter cuttings, or, indeed, cuttings of any month in the

year. And when we come to compare notes we find that we can be of material service to our correspondent, Mr. W. P. Ruddock, of the York Cemetery, from our longer time and experience in that cheap way of filling a rosery, in return for his facts accomplished in less time than any others on record. I have no doubt that we might also be of considerable use to the great Rose-growers and to their catalogues, and through them to the public at large, if we had kept a strict list of all the kinds of which cuttings were made; as, at the end of three or four years, some of the kinds of which we are certain of the names have turned out quite different from what they are described in the catalogues. The difference being almost, if not entirely, owing to the kinds being on their own roots, and neither stimulated by a stronger root, nor kept more dwarf by a less vigorous or less healthy stock than their own.

Some well-known Roses which make but an ordinary full standard when worked on the Dog Rose, have grown in three years from cuttings to make pillar Roses; seven feet high in the fourth year from a cutting; and ten feet in the fifth year. While others, which cannot be kept as regular standards at the Experimental, owing to their free habit of making very long shoots, are now put down in our book of details of management as second-size Roses.

We have also discovered, and Mr. Ruddock will do the same in a year or two, that some Roses will work the pride out of themselves the very first year, some the second, and some not till the third or fourth season; while others will begin to grow slowly at first, and not show their character of strong growers under the seventh or eighth year. A plant taking the pride out of itself, in the language of gardeners, is one which speedily grows to its full extent, or cripples itself by too much bloom or fruit. Some of Mr. Ruddock's Roses, which have made shoots four feet long the first growth from the graft, will probably not make much more than four feet of annual growth for the next seven years; and some which are now not over a foot high will make stout pillar Roses in that time. At all events, such are the conclusions I have arrived at from the experience of some years in the use of Rose-cuttings. Probably the Manetti-stock may give a sudden impulse to the growth of the grafts, as it always does when done by budding, and that must derange the comparison between grafts and cuttings during the first few years, but not afterwards; for as soon as the Manetti forces up a vigorous growth from a graft, its own life is done for: that effort will return, as it were, with the returning sap in the autumn, and shake off the trammels of the strangling stock by rooting on its own account, so to speak, the second year. "I grafted fifty [Roses on the Manetti] in March, 1858; and I moved them last week [end of November, 1859.] They were all Hybrid Perpetuals, and they are all now rooted from the grafts,"—that is, from the bottom part of the graft, where it was cut; or say rooted from the edges of the cut made for grafting in the first instance, and rooted up afterwards to the surface of the ground from all the eyes which were on the grafts, or from all where the eyes should come from if they were not blinded.

Another practical lesson of equal value was taught by these experiments—the deaths are recorded from grafts "not near enough to the root of the stock." The bottom of the graft should reach down to the first roots. A notch made just close over the fibrous roots, and then a thin slice of the wood from above the notch cut down to it, is as good a way as any. The graft is then cut with a square end to rest on the notch; and then the graft of necessity must be buried as deep as the roots, or nearly so, which is another main point. Anybody may begin grafting these Roses to-morrow, or to-morrow night, and go on every evening or every day to the end of March. The grafting may commence, indeed, as soon as the fall of the leaf, and go on all winter.

Some of my readers will still remember how the grafting little pieces with two eyes only, and small pieces with only an eye, was explained from the Lea Bridge Nursery last spring. The Messrs. Fraser had then a whole houseful of new Roses fully established from such small grafts, made since the last fall of the leaf. Almost all their plants made two shoots each from the two eyes, and both looked equally strong. But, then, their grafting was to increase and multiply the new kinds of Roses as fast as the weeks and months came round; so their grafts were not buried in a Cemetery, nor in the natural soil in the pots; and the wood from their grafts was also cut in pieces as soon as it was half and three-parts ripe for the same end, which was not that end of the stock which is the best for grafting on.

The doctrine which would save the roots of a stock or tree from a free use of the knife at planting time, to save the mouths of the roots at the tips of their extremities, was bad from the beginning, and no plant in the catalogue could prove the fact more clearly than a Rose. You had only to save the spongioles of the Rose, as the sucking-mouths are termed, for a few times of transplanting, to have the plants, roots, and blossoms ruined. Rose-roots must be well docked by the knife, and root-pruned by the rule, every time the plants are removed, if that were at the end of every autumn; and if only six or eight inches of the bare black stump-like roots are left, all the better—every part of their skin, or bark, is just as able to suck up moisture as the tips of the roots; and every piece that is cut off, and is six inches long and as thick as penholder, will make as good a stock for grafting on as a Manetti, for the only use it is for is to nurse the graft the first season. But the grafting on pieces of the roots must be done at the other end of the stock—the top end, and that is all the difference. The grafted part should be planted as deep in the ground as the bottom part of a worked Manetti: and to make this root-grafting more safe and sure, the best plan would be to draw drills, as for Sweet Peas, and to plant the grafted stocks in the bottom of the drill with a trowel, *not with a dibber*, leaving only one bud of the graft above the soil, and to earth up the plants in the drill as soon as the first growth was sufficiently long, or say when the first shoot was six inches long.

It is now quite certain that grafting Roses is a more expeditious method than rearing them from cuttings, although, in the long run, it amounts to the same thing. Those who are expert at cuttings may even find it a surer method, and the trouble and time are much about the same in the two methods. Those who fail with Rose-cuttings may be more successful with grafting; and gardeners who can manage both ways will be guided to either by their convenience. If they have stocks at hand they will work them; if not, they will put in their cuttings and wait longer for established plants. Manetti seems the best stock; and the roots of any kind of Rose, so that they are not too old or too strong, the next best. When roots are so old as to throw up suckers in opposition to the graft they will be troublesome the first year; but after that the grafts will root for themselves.

The time will come when Roses will be classed according to their natural growth on their own roots, not according to the artificial strength or weakness induced by this or that kind of stock; and when that time comes the pruning of Roses must be also very different to what it is now. Our York correspondent, Mr. Ruddock, will find out next summer that, if he prunes his four-foot shoots from his grafts as he would the head of a tall standard Rose, he will multiply his shoots, and get them longer and stronger; but his Roses will not be so numerous, or so fine, in some of the kinds, as if he did not prune at all. Let us say, for the practical guidance of all, that a grafted Rose sends up three strong shoots. One is four feet long, another two feet, and the third shoot only one foot high.

The proper way to prune that Rose on its own roots would be to leave the longest shoot at its full length, to bear Roses next summer on side-shoots three-parts of its length from the top; to cut back the second-sized shoot to one-half its length, to give a few Roses in succession to the big shoot, and to make sure of a good, bushy growth for the middle of the bush; and to cut the third and weakest shoot down to three or four buds, to form a bushy bottom, and to be the first to bloom in the autumn. To go over the rosery in July next; and to cut back all the long four-feet shoots down to two-thirds of their length, or below to where they ceased to make side-shoots for blooming; to keep strictly to that method from year to year, but leaving more of the strongest shoots on each plant uncut as the roots get older and stronger; and when, at last, all the shoots are very strong, and some of them too strong to bloom freely, to take up the whole plant and divide it, or cut back all its roots and shoots on the docking or dwarfing system; either way the roots ought to be well cut. Rose-roots should never be allowed to travel far from home; for, if they do, like the Vine roots they soon get as bare of active fibres as wire-strands in a fence, and run down into bad subsoil, thus causing the growth of strong and spongy shoots which fail to bloom, or even ripen, but never fail to be attractive to a host of insects, inducing bad skin diseases, and rendering them as liable to frost as the tenderest of Tea Roses. Indeed, Tea Roses are now better understood than formerly, better managed in consequence, and much more seldom damaged by severe winters. Their roots, which are all their own in most cases, are kept nearer home by frequent transplanting; they are generally thinned in their shoots after the first blow is over; and the long "robbers" or succulent shoots they are apt to make in showery weather are either stopped when six inches long, or, if not stopped, they are cut right out before the winter, and a little something dry protects them from the frost, which is all over for the season before they are finally pruned; and at that final pruning the greatest part of the work is in cutting out entirely the weakest of the growth, in thinning the rest, and in cutting low down frost-bitten parts.

Three years since, next February, the last row but one of the ribbon-border of the Experimental Garden was planted with Roses a year old, from cuttings; and the rule was, that no Rose that is stronger than *Géant des Batailles* should be put in that row, in order to get all the flowers in the row into one uniform height. One row of dwarf Dahlias was put behind the Roses, and at the back came a face of varied evergreens. In front of the Roses the lines are annuals, a change in them, or some of them, being made yearly. Last year—that is, in the summer of 1858, we had a Rose-tale, a Rose-rising, and a Rose-monopoly attempted in that one row after all our care,—and it was little comfort to put the blame either on the Rose-catalogues, or on our own heads, or want of brains. There they were, up and down, cross and sideways, with enormous blooms, but not over-bloomy, and anything but ribbon-like line. In the same soil, and under precisely similar conditions, *Tom Thumbs* and common *Calceolarias* were just up to the mark, and no more; but another row of seedling Geraniums, which is also changed for a fresh set of seedlings every year, was and has been from the beginning on the self-same footing as the Roses—up and down, broad here, lean there, and leggy yonder; yet, looking at them across the border both they and the Roses seem as they ought to be. I should say that these seedlings are matched the previous season as near as we can judge; and as they first come into bloom, a doubtful flower is not admitted. It is the habit which spoils the row, and it is the habit which does the same with the Roses on one part, and the want of transplanting them yearly on the other part; but our experience extends no farther than the end of the row, and books and brains are both silent on the subject of

classing Roses on their own roots. Well, that very day Mr. Ruddock sent up his account of his Cemetery Roses the gardeners of the Experimental were digging up the strongest and second strongest Roses in that row; and when they heard of the farther success of that grafting, "My good gracious! if he should prune them the right way," meaning the ordinary way of pruning Roses would give him all pillar Roses next summer, and my few-and-far-between Roses. "But," said I, "why should a second person burn his fingers as ours have been? Let us tell him all about them; let us also tell him to do with some of them as we are just doing with these. Plant a row of them at four feet apart, centre from centre, to form a hedge of pillar Roses opposite the dining-room windows." "But, man alive! they do not dine in our Cemetery at Kingston, they bury there, as that man did them their grafts." But, after pruning for pillar Roses, by leaving one or more shoots at full length; and by cutting back the rest to different lengths down to three eyes from the soil, the opposite—the dining-room Roses—were planted in two-thirds rank black clay, from the bottom of the water-work's tanks or lakes, aired and frosted to pulverisation, and one-third rotten dung on a dry sandy bottom; and if that should cause them to grow out of bounds, there is yet plenty of room overhead. The rest of the ribbon-row of Roses is removed also, and planted along with others; but in a continuous row on a mixed border, to see and prove if they, or the like of them, can be introduced into the ribbon-border—that is, that so many different kinds of Perpetuals should grow as nearly alike as possible, in order to make a row as uniform as a row of *Tom Thumbs*.

What I want to see on the ribbon-fashion is this: a broad band of Roses from three to four feet high running east and west in front of tall evergreens, the plants all of that size, and the flowers running in an harmonious shade from either end to the middle, and a close row of the best white dwarf *Zelinda* Dahlias immediately in front of the Roses; then fancy rows and bands, as at present, with the walk between the sun and the ribbon. Then bring me the man who could not admire the effect of shading as represented in that row of Roses, reading it from the centre both ways, and I would instantly despatch him to York Cemetery, with a private communication to have him buried there as deep in proportion to his size, and to his lack of taste, as the Rose-grafts were by Mr. Ruddock. But I fear the Rose-experience of the three kingdoms is not equal to the task of planting ten yards of such a row, as all the plants must be on their own roots: therefore, until experience accumulates facts, and flowers to match and harmonise, we must be content to see rows of one, or at most two and three kinds of Roses in one such row. *Géant des Batailles* is the best kind I know for a sample plant: get twenty more kinds exactly like it in growth and strength, and in five shades of Rose colour, and we shall do. The next best Rose, if not itself the best, is one which Mr. Standish, of Bagshot, exhibited last summer at the Hanover Square Rooms, and which is called *Eugène Appert*; and the next or nearest to these two in my notion is *Bacchus*. If the three should come on their own roots in the three degrees of big, bigger, biggest, I would put the last in the centre of a bed, the next outside it, and the first next, with a row of *Mrs. Bosanquet* between them and the gravel or grass—a splendid bed, but totally different to the row I anticipate.

D. BEATON.

HARD-FLESHED WATER MELON.

SEEING in a recent number of THE COTTAGE GARDENER an article on the uses of Gourds, Pumpions, and Marrows, I believe I possess a variety of hard-fleshed Water Melon, which, when used with one-third Apples, makes most delicious tarts, &c.

As a preserve it is said to be superior to Green Gage, and is hardly distinguishable from moist Citron.

Not satisfied with my own experience as to its use in tarts, &c., I gave one to a friend, who pronounces it delicious. The in-

trinsic value of this fruit is not so much in its being an addition to the luxuries of the great, but in its being within the reach of the humblest cottager; and almost any one with ordinary care may produce a whole winter's supply on a very small space of ground, growing a crop of Radishes or young Lettuces on the same ground before planting them out.

This Melon is of slender growth and small in foliage, and may be treated almost like a ridge Cucumber, it being the hardiest of the whole race of Melons, though not eatable. As a ripe fruit it is very beautiful, and is, I am fully convinced, worthy of a place in every garden, the fruit being round, and irregularly striped with dark green on a light green ground.—W. E.

GROWING CUCUMBERS IN A SPAN-ROOFED HOUSE HEATED BY FLUES.

So far as I can judge by the sketch sent by "GARDENER, *Hampton Court*," his house is span-roofed, 10 ft. wide, 30 ft. long; side walls 7 or 8 ft. high, but without glass; centre ridge of roof about 12 ft. from floor; floor itself divided into two pits longitudinally by a pathway down the middle; the inner walls of pits being of $4\frac{1}{2}$ -inch brickwork; the lower part opposite the flue being pigeon-holed—a flue passing through the centre of the floor of each pit; space around and immediately above flue filled with brickbats, and soil above them to raise and grow plants. He tells us as a "GARDENER" that his have failed, without giving us any outline of his practice to enable us to judge of the chief reasons of failure; and he wants to know if Cucumbers can be grown in such a span-house as per plan with profit. "Can I begin now? and which is the best sort?"

If, as a "GARDENER *near Hampton Court*," he had read this work and looked pretty well around him, he would be aware that for such a purpose I should have preferred hot water to flues; chiefly because, either by tanks or evaporating-pans, or keeping bats and clinkers moist, he could obtain a moist heat at pleasure without getting anything in the way of an unpleasant steam or dangerous gases from the heating medium. This would be apt to be the case when such a house was heated in winter by a flue; more especially if, for securing moist heat, water were sprinkled or poured on that flue when hot. These matters guarded against, I would just as soon have a flue, if it gave heat enough, as a hot-water apparatus.

A common flue, with brick on edge and stout covers, and plastered outside but not inside, I should consider suitable to commence to grow Cucumbers about the middle or end of March. To grow them in the winter and spring months I should require a stronger flue—namely, brick on bed, and joints made with the best lime-putty, and the outside covered with thin plaster, or several good whitewashings. The top I should prefer to be of flagstone, or of strong thick tiles; and in neither case, during winter and spring, would I permit any water to be thrown on the flue. Of course, a slight sprinkling when the flue is only gently warm would raise a nice steam and do no harm, but the reverse; but as the flue is shut in and it cannot be easily examined, I would rather resort to other means for atmospheric moisture.

So much for flues: now for the pathway pit-walls. I fail to see the object of having the lower part of these pigeon-holed, I presume as high or higher than the flues; but I can easily see a great disadvantage. For instance: the heat freely escaping there may fail to give you enough bottom heat when you require it; and in a sunny day you may have too much dry atmospheric heat, and your plants may suffer because there is not enough bottom heat to keep up a brisk root action. Your plants being turned out in earth possess some advantages over plants standing in pots unplunged; but in these extremes the roots are not so soon acted upon by the increase of temperature as if they had been in pots. Besides, the heated air issues at once into the pathway, and thence mounts to the ridge of the house; and as it cools it gets down the glass, along the surface of the bed, and down into the pathway, if it can find its way through the rising heated air. I should prefer the heated air to rise chiefly at the two sides of the house, pass over and through the foliage, and, rising to the ridge, fall again into the pathway, be again heated and pass through the same process. For these purposes I would close up the whole of these pigeon-holes, with the exception of two or three in each light, and those on the floor-line of these inside walls; as, from these so low, there would be little chance of the heat from the flues escaping: they would, therefore, do

little or nothing to lessen bottom heat. From these openings air-drains should pass, either below the flues, or, if not convenient under, over them close to the front wall; having either open rubble or drain-tiles rising there higher than anywhere else, so as to admit heated air passing there quite freely. Meanwhile fill in all round the flue and over it as loosely and hollow as possible with clinkers, brickbats, &c., placing the latter starting from the flue, that, if any water should reach them, it will pass from the flue rather than on it. So far I would arrange just as "A GARDENER" has done; only I do away with most of the pigeon-holes, and make what is left so many air-channels for keeping a circulation from the front of the house and the pathway; as, independently of the open rubble, I would have open drain-pipes standing up close to the front wall, rising at least a foot above the clinkers and communicating with these air-drains.

Here I have two other suggestions to make. The first is, that under circumstances similar to what our correspondent describes, when using manure water, the water has trickled through the brickbats on the flue, and when very hot given out an unpleasant odour. The placing the brickbats sloping will help this, but not altogether prevent it. Again: by what I propose there would be a circulation of air; but I have taken no means to confine that heated air, if necessary, below the soil, nor to supply the atmosphere with moisture. The suggestions have reference to these matters. After the last cover of brickbats place a layer of coarse gravel, and then a layer of fine gravel; raise it highest against the front wall, having the upright drain-air-tiles several inches higher still; but for four inches from the wall place no fine gravel there, but coarsish, cleanwashed gravel or coal ashes: this is to permit the heat to rise freely. On all the rest of the bed, sloping from front to back, pour on a thin layer of mortar made of new lime and sharp sand, and spread as quickly and as smoothly as possible. When this is dried a kindly bottom is prepared for the soil, and through which neither roots nor a drop of water will easily penetrate, but through which the heat will rise freely. A few openings in the row of bricks, or the pathway wall opposite this floor, will enable you to judge at any time of the state of moisture at the bottom of your soil.

Now, to secure heat in the atmosphere, and moisture and bottom heat at will, I will suppose that the above floor is three feet, or a few inches less, from the top of the side walls. I would allow about eighteen inches for soil; I would then have a twelve or eighteen-inch board, half an inch thick, and of the length of the pit, tarred, and dried well before being put on, or, if there is not time, merely planed. The thickness of a brick would keep it from the front wall. The brick should not be so high as the board by an inch; bits of wood would answer equally well. The soil would keep up the boards on the other side. Heat the flue, and the heated air must rise through that opening, as well as heat the material and soil above it. Keep the gravel and clinkers damp, and the atmosphere must be moist as well as warm. For this purpose pour water down this opening as necessary, and it will all come back again without touching the flue; or, if it please you, take a small pipe along, pierced with small holes, communicating with a basin or barrel at one end, and it will continue to throw out its tiny jets on the warm gravel. When on a hot day you wish to throw what heat is in your flues to heat the soil more, have some slips of wood the width of the opening, and lay them along on the top of the bricks or pieces of wood that separate the divisions of wood from the wall. By such simple means, more simple than this lengthened detail would lead one to suppose, Cucumbers at all times may be grown with a good strong flue as a heating medium.

Another, but a more expensive method, and something in unison with our correspondent's plan, would be to fill up all his pigeon-holes, make a chamber over the flue with stone, or wood placed open, and clinkers, brickbats, &c., jammed and plastered in the openings. Strong evaporating-basins placed on the top of the flue—if all the way, so much the better—and slides of wood in walls of the passage, through which such basins may be filled, and the bottom and atmospheric temperatures regulated.

Cucumbers will not long continue healthy in winter and early spring unless the bottom heat averages from 75° to 80°, and the top heat at night averages 60°, with 5° rise during the day in dull weather, 10° when there is any sun to speak of, and 10° or 15° more still when the sun is bright, with a little air on, and moisture in the atmosphere in proportion to the heat and light. Of course, in dull weather and no sun, it would be injurious to raise a high temperature, or give the plants a regular vapour-

bath. As summer approaches, and goes on, there may be no necessity for artificial heat in the atmosphere, when at times the roots would be better of a little.

I mention these simple additions to "A GARDENER'S" plan, because, though I have grown Cucumbers successfully, by merely placing boxes and pots over a flue separated from it merely by a couple of bricks to stand upon, yet I have had a flourishing crop, and, what was worse, the plants that bore them destroyed in a few minutes by an explosion in the flue. That, again, was partly owing to the flue being old and "casualty," as they say hereabouts, and partly to the water trickling on the flue from the pots and boxes when watered. If, instead of doing as advised, our correspondent would rather use the simplest improvement, then it would be to pack the part over the flue, and by the side of it next the path, with bats, &c., sloping from the flue, and leave part of the upper row of pigeon-holes. Through these he could pour water on the bats when necessary; and he could have wooden plugs with a nail in them, by which he could stop these pigeon-holes at pleasure. That plan, however, would be inferior to having slides and evaporating-pans on the flue, and still more inferior to the opening from brickbats and air-pipes left in front.

I notice, also, that there seems to be no upright glass in the sides. On that account the plants may be inserted higher, and the beds may thus be raised higher, to have the advantage of all the light possible when young. The plants should also be inserted pretty near the pathway. Cucumbers are not particular as to soil, provided it is fresh, light, and fibry loam. In winter I prefer adding a good portion of heath mould and charcoal. In summer give rotten dung instead of the peat earth, or good top dressings of old manure; not forgetting manure waterings in dry, sunny weather.

In such roof-training it is best to train to one stem without stopping until it nearly reaches the length; and then, when stopped side-shoots will come thick enough. Let the trellis be fifteen inches from the glass.

So much for general ideas as to growing Cucumbers by means of flue heat. "Can Cucumbers be so grown to profit?" I presume to sell. I say no, so far as the dead winter months of November, December, and perhaps January, are concerned. Not only because there is less sun in these months and more fire heat required, but because there are not enough people fond of eating them to pay remunerating prices for them. Things may be altered now; but at one time a person might look in vain for a purchaser of Cucumbers in these months in London. Hence I have seen Cucumbers selling cheaper in December than in May. Some one better acquainted with the market would do well to give "A GARDENER" a practical hint in this respect.

"Can I begin now?" The middle of December will be reached before you see this; and between that time and the new year would be a good time to sow, so as to have strong-bearing plants to meet the London season in February, March, April, May, and June.

"Can I raise plants in such a house?" No doubt you can; but I question if with profit, unless you raise as many plants as would supply pretty well a county, and expect that county to come to you and buy them. A very small space of these beds would grow as many young plants as you would want for all the house; and still if you raised them in the house as high a temperature would be needed for them as if you had a houseful. Unless, therefore, you had something else in the house needing as much heat as the Cucumbers, you could not raise them there profitably, so far as your own supply was concerned, without resorting to some contrivance to economise heat. Supposing that at the hottest end you filled your pit with sweet fermenting tan, you could sow the plants in that, and cover with hand-lights, and cover these hand-lights at night with mats, and thus much less fire heat would do to bring the plants forward. In order that that fire heat might not be lost, you might grow plants in the other part, or have the pits six inches or a foot deeper than I have supposed, and fill them half full or more with tan, and fill one half with Rhubarb, and the other with Sea-kale, which might be all out and sold before you wanted the space for your Cucumbers. If such a contrivance could not well be resorted to, I would put up a single or double-light hotbed, and in that sow and grow enough plants so as to have them some size before I took them to the house. When profit is an object, as little fire heat as possible should be used. By raising the plants in the house along with Rhubarb, Sea-kale, and even Mushrooms, the temporary things would pay for the firing.

Altogether, as tree-leaves and tan likewise are easily accessible

in your neighbourhood, I would raise the plants by one of the modes referred to; and then I would fill both of these pits with one or both—say leaves below, and tan above, and high enough to permit them sinking a foot; and then, instead of planting the Cucumbers out, I would grow them in pots about sixteen inches in diameter, finally; but shifting them two or three times until they were fit to go into that size, and larger, and then plunge them one in a light, or every three or four feet along each side. By this means the pits would not be occupied with Cucumbers altogether until the plants were some size. Growing this way in pots, if top dressing and manure waterings were attended to after the days lengthened, would, I have no doubt, yield you as many, if not more fruit, than if you had planted out in a bed of soil; whilst the tan would give you an addition of nice, moist heat, and yield nourishing gases every time you turned its surface. A plant could also be moved at any time without inconveniencing its neighbours.

Of kinds the most prolific is *Sion House*, or *Lord Kenyon's Improved*, for winter and spring; but I do not know how it would take in the London markets. Two very good kinds for spring and summer are *Cuthill's Black Spine* and *Hunter's Prolific*, the latter white-spined and a very fine Cucumber. *Ayre's Perpetual*, black-spined, is also very good for trellis training, and so is *Monroe's Prolific*, lately advertised.

Some people may imagine that I am learning to walk backwards in saying so much about growing Cucumbers with profit by flues; but many even in the neighbourhood of towns have to resort to many makeshifts, and some of them, as well as "A GARDENER," may, perhaps, pick up something out of my gossip.

R. FISH.

WHITE VETCH.

IN answer to the query to "R. A." of the 29th of Nov. in THE COTTAGE GARDENER—"What is it you call White Vetch?" The plant was given to me about three years ago, and was simply called "White Vetch." It is a hardy herbaceous plant, grows about two feet in height, with a profusion of white flowers from July to September; little known, and well deserving a place in every garden. It does capitally planted in a long ribbon-border in front of the common Laurel in the background. For instance:

1. Common Laurel.
2. White Vetch (*Vicia cracca floribus-albis*).
3. Scarlet Geraniums.
4. *Flower of the Day* ditto, edged with *Lobelia erinus*.—R. A.

[This is a white variety of the Tufted Vetch *Vicia cracca*, "English Botany," 116, and may turn out as useful as the Variegated Mint. We never saw it before, nor do we find any further mention of it than in Donn's "Dichlamydeous Plants," ii. 317, where, under *Vicia cracca*, it is said "*Var. γ albiflora*: flowers pure white."]

PLACING FERMENTING MATERIALS ON THE SURFACE OF VINE-BORDERS.

HAVING been taught in my boyhood that it was highly necessary in forcing Vines, of which the roots were in the external border, to cover over the ground a good thickness with fermenting leaves and manure, and having seen it so done by many cultivators, and having done it many years myself, it may, perhaps, seem strange that I should attempt to write a word in its condemnation. Early impressions are parents of prejudice, especially when backed by long experience of others; therefore, to investigate for ourselves more than we do the various dicta we receive from time to time, is a duty we ought to practise.

I have found this difficulty in thus treating Vine-borders: when you have put on the heating materials, and a nice genial warmth succeeds, you will find the Vine-roots all attracted to the surface, and the next thing, they will be running riot among the dung and leaves. This, for a time, stimulates the Vines, and all goes on well so far; but the Grapes colour, and the time is come for the removal of the fermenting materials. You then find them filled with long, white, fleshy, and most tender roots, many of which are severely injured in the operations, while others suffer much injury from moving and exposure to the air. No sane person would think of performing this operation, except during a fine, sunny day, when all is mild and favourable. But, unhappily, in this country, we have such sudden changes of the weather, that the next day may be bitterly cold, and all that is

disgusting to the newly-developed and most tender young roots; their vitality is arrested, and a severe blow given to the energies of the Vines. This does occur almost invariably even in June: nor can it be wondered at, if the Grapes on Vines so treated shank. This disease has been imputed to a thousand and one other causes; but that it was occasioned in my case by the removal of the covering I feel quite sure.

I will detail the case I allude to. We have here two adjoining vineries. The one brings Grapes ripe the end of May, and the other about September. I have been in the habit of covering the border of the earlier house with dung and leaves annually, and always observed the shanking to commence after the removal of the covering. The year before last I took up all the roots outside the house, and had the border filled with fresh compost, and replanted them with great care. They succeeded to admiration—so much so, that I allowed them to carry a crop of the most perfect fruit, which they did also to admiration. But I used no fermenting materials; simply covering the border two feet in thickness with dry Fern, and then thatching it. This was done at the end of September, and prevented the escape of the heat accumulated in the border. It was not removed till the Grapes were as black as Sloes, and they were perfection in size and flavour. I have this year repeated my covering of Fern, and I am sanguine of its results; so sanguine, that I purpose making this my system till I can hit upon a better one.

But, granting that early-forced Grapes do require a little assistance at their roots with heat, I would still forego such appliances as I have been speaking of, and for early Vines have my roots under control by having the border inside the house, and the same for very late Grapes; while the intermediate crops should have borders outside, and the roots run where they like.

I have never quite approved of the heating and chambering of borders; but the *Muscats* shown by Mr. Drewett were a striking proof of success, being such as were never seen before. I once saw at Welbeck, many years ago, a vast scheme of this kind; but Mr. Mearn's Grapes were not better than other peoples', and there were myriads of coilers which were quite failures. Perhaps, for the sake of *Muscat* Grapes, chambering may be worth while, as it is a Grape requiring a higher amount of temperature than others. But for ordinary Grapes, while they can be done, as they are at Mr. Sneyd's, without it, it would be folly to attempt it. It falls to the lot of few gardeners to have an employer who would undertake the expensive operation of chambering borders; and when done I have never seen it compensate the person who pays for it. Quite sufficient provision is made for early Grapes by having the border inside the house; and, wanting this essential provision, many will be the difficulties which will present themselves.

The Grape Vine is one of our most noble fruit trees, whether we regard it for its luscious berries, or look to it as yielding a beverage "which maketh glad the heart of man." It is, therefore, a pleasing task to study the philosophy of its culture, and to improve it, if possible.

It is within my recollection to have seen old Vines bearing magnificent crops, always ripe early in May, whose border was four feet of cold, sour clay, in which there was not a root; but all existed in the decaying brickwork at the front of the house, where they found a habitat which just suited them, and proved to the astonished gardener how much they delight in such materials, and that the wall heated by the front flue gave their roots a warmth which made them rejoice.

In vain in future years, or at this present, shall the writers of "Calendars" din in my ears that "it is time to prepare fermenting materials for the Vine-borders." Avaunt leaves and dung for that purpose, unless the leaves are perfectly dry, when they may be used instead of dry Fern for preventing the radiation of the internal heat of the border.

Let me not be misunderstood in my opinion of this subject. I do not maintain that heat is by any means unnecessary for the roots of Vines; but I object to the usual dressing of leaves and hot manure which is heaped upon the border, and which can seldom be removed without inflicting serious injury on the Vines. In lieu of this, I would make the border for early Grapes entirely within the house, and by this means prevent the necessity for such applications. I fear to be thought most heterodox for my writing, opposed as it is to every-day practice; but beg to assure my readers that my present views are neither crude nor ill-considered, but are the result of long and diligent observation, and that they are, moreover, truly conscientious.

Much as has been said and written on the subject of Vine

culture, very much more remains to be done, particularly in this age, distinguished as it is by the community of luxury, and still more eminent as each succeeding year must make us in this respect. The longer we live, the more we see of the futility of the theories of men, and the less should we be wedded with prejudice to old notions. I would not at all value the man who is a weathercock, and who moves his position with every breath of wind; but, at the same time, I would pity him who seems to be in an enchanted circle of his own practice, and cannot, therefore, reason on its folly, or applaud the opposite course of his near neighbour.

The knowledge requisite for a gardener to possess is largely augmented by experiments. He should take nothing for granted; but convince himself, by trial and proof, of the adaptability of what he reads, to practice. If he does this in the spirit of true humility, the sun of truth will burst upon him and enlighten him truly.

I venture to hope that these brief remarks may induce some other gardeners to communicate their experience on the subject of my theme, and that some useful hints and much pleasant reading may be the result. HENRY BAILEY, *Nuneham*.

RED LEAD PRESERVES SEED FROM BIRDS.

HAVING read in THE COTTAGE GARDENER (November 22) Mr. Ashman's remarks respecting mixing red lead with seeds before sowing, as a preventive against the ravages of birds, and your opinion that it required further experiments, I beg to inform you that I have used red lead with my seeds for the last ten years, and each year has proved successful. Instead of using so many flowerpot-saucers, and allowing a night's delay, I use but one, simply mixing the red lead with the seeds and a little water, and then sowing them immediately; and so on with as many sorts as I have to sow.

Last spring, having no red lead by me, I sowed my Broccoli, Brussels Sprouts, &c., without it, and the birds took them all; so I had to sow again, but taking care the second time to mix the seeds with red lead, and they all came up and stood well.—CHARLES HUTLEY, *Osmaston Hall Gardens, near Derby*.

SOME OLD-FASHIONED FLOWERS.

CAMPANULA PYRAMIDALIS.

It cannot be denied that many of our old favourite flowers are now entirely neglected, and some of the most beautiful old plants are now scarcely ever met with. However, I trust the time will return when some of those old favourites with new faces will again occupy such a position in our gardens as they deserve. It is my intention to endeavour to bring into notice a few of the most popular of our once-favourite pets; and I trust, by devoting a short article on their culture, &c., it may have the desired effect.

It cannot be said that the above *Campanula*—the most beautiful of the whole tribe—occupies such a prominent position in our gardens as it merits; indeed, it is but very seldom we meet with any specimens deserving notice, and many establishments cannot boast of a single plant about the place. I believe I may truly say that the best specimens are to be met with in the windows and gardens of cottagers—they do prize it; and many an old dame would sooner part with her last shilling than her favourite "*Chimney Campanula*." Certainly a very good name for it; for no plant is more suitable to screen the whole face of the chimney than the *Campanula pyramidalis*.

Strong plants well grown will throw up from five to twelve flower-stems, varying in height from four to eight feet, and frequently much taller, so as to form a sort of floral pyramid; they will also produce side-branches, and these branches being spread out upon a frame of slender sticks in the shape of a fan, produce a complete sheet of flowers, so as to form a chimney-screen. This plant is also well adapted for the decoration of halls, passages, and different corners of a gentleman's establishment; and if kept from the rays of the sun and from rain it will last a long while in perfection—but plants so treated are rendered useless for another season. If the rooms are very close it will be of great advantage to these *Campanulas*, and cause them to continue their beauty longer, if in the evening they are set abroad for the benefit of the air under some cover where they will be protected from wet.

These plants are easily propagated by offsets; but the plan I

adopt, and the one I would recommend, is to raise plants from seeds, as they are always much stronger, and the bloom-stalks much longer, and produce more blossom than do the plants raised from offsets.

The seed may be sown as soon as it is ripe, or in autumn, in pots or boxes filled with light soil, which should be placed in a shady situation in the open air until bad weather sets in. They should then be placed in a cool frame, and every opportunity should be taken in fine weather to draw off the lights. Early in spring, when the plants begin to show the least symptoms of weakness, they should be removed to some warm, sheltered spot in the open air, and be protected from the sun and heavy rains. As soon as sufficiently large to handle they should be pricked out into a bed of prepared light soil, and shaded, &c., as before recommended; and, should the weather prove very hot, watering must not be neglected.

As soon as the leaves turn yellow in autumn the plants should be transplanted in a kind of raised nursery-bed, which should be in the warmest place in the garden. They should be placed from six to eight inches apart either way, and should always be removed with great care; for if in transplanting the roots get bruised they emit a milky juice, which runs freely and weakens the plant. It is also requisite to cover the crowns of these plants at least with half an inch of soil, and likewise to protect the beds in severe very wet weather, as the roots, when young, are very liable to rot.

The plants will require no further trouble, except occasionally watering and keeping them free from weeds, until the following autumn; and by this time many of them, if well cared for, will be strong enough to bloom the following summer. The strongest roots should then be selected for pot culture, and those likely to blossom planted where they are intended to flower, or kept in a cool frame through the winter and planted out in the spring; the latter is the plan I always adopt, it being much the safest.

The remainder of the plants not likely to bloom I again plant into a nursery-bed, at a foot apart, where they remain until removed to the blooming quarters. This being the third season, the plants will be very strong, and will amply repay the cultivator for his trouble.

It is advisable, if you wish to save seeds—which in order to keep up a succession of strong-blooming plants a little should be sown every autumn—to put a few plants of both the white and blue varieties in some very warm place where they can be protected from the wet when in blossom. I have always found this seed preferable to the seed saved from the plants grown in pots which have been placed under glass.

I may here remark, where the *Campanula* is planted in the open borders it is requisite to protect it in the winter by placing old tan, or such like material, over the crowns.—EDWARD BENNETT, *Osberton Hall*.

PROTECTING COLD FRAMES WITH LEAVES.

CLOSE-GLAZING THE ENDS OF GLASS-HOUSES.

I PLACE a single piece of old carpet on the glass; then a covering of boards, made to fit close and quite cover the top of the frame; and when the weather becomes severe I make a wall of leaves all round the frame, and as high as the top of it, about nine inches thick. This remains all the winter; and when necessary I cover the top of the frame also with leaves, the quantity used being regulated according to the weather; and for the last four years I have found eight or nine inches thick of leaves on the top of boards and carpet to keep the glass quite free from frost.

I uncover every morning as soon as safe; but on the very coldest, sunless days it is necessary to lay a mat on the glass, and cover up again early in the afternoon. If the glass gets frozen with a mat on it is better to cover up again till another morning.

I place a heap of leaves as near the frames as convenient; and they are easily put on with a fork, and taken off again with a rake. I clear them all away from the frames in March, and do not find the wood more injured than if it had been fully exposed all winter. I use any old boards I can get; but shutters made of white deal, and painted, would be light, cheap, and durable, with proper care.

In the frames I keep *Cinerarias* till the pots they are to bloom in are filled with roots; bedding *Calceolarias*, and all kinds of bedding plants that will bear a little confinement and damp.

I also will say a few words about the glazing of the east and west ends of plant-houses. I have under my care two houses used exclusively for plants—one has the back and end walls of brick, and the back roof is slated. The other is a lean-to, and, except the back wall, is chiefly composed of wood and glass. The former house is heated by a flue, and the latter by hot water in four-inch pipes. Both answer very well; but in severe frost, when there is a strong north-east or north-west wind, which is not uncommon, so much cold air gets into the last-named house through the laps that it is almost impossible to keep it at a temperature of 40° by night. I am of opinion that if the east and west ends were glazed air-proof, like dwelling-house windows, and Hartley's rough plate glass one-eighth of an inch thick were used, the two evils of a cold house and a great fire would be in a great measure prevented, as I find no inconvenience except darkness from the end walls of the other house; and it is easily kept at a temperature of 40° to 45° on the coldest nights. If the ends were made air-proof provision might be made for ventilation by windows on hinges, and made to fit well. Of course the cost would be considerably more; but less fuel would be required, and accidental breaking would be very little. The house with ends of brick and roof of slate has been under my care more than ten years; the other was built in 1851. They are nearly equal in size,—viz., 27 feet by 14 feet, and 30 feet by 15 feet.—THOMAS OXLEY, *Spondon, near Derby*.

MANURES IN A SMALL COMPASS.

As an appendix to the "House and Town Sewage," we will give a few details relative to other manures which are very available, being small in bulk and readily obtained.

LIQUID MANURE.—Liquid manure is the most advantageous form in which fertilisers can be applied by the gardener to his crops. It is the most economical, most prompt, and most efficient mode. The manure is presented to the roots in one of the only forms in which the roots can imbibe food, and the manure is spread regularly through the texture of the soil. If, instead of digging in stable manure, each crop were watered occasionally with liquid manure, the produce would be finer and more abundant. "I have often employed with decided effect, in my own garden, for Vine, Peach, and standard Apple trees, liquid manure, prepared either by mixing one part by weight of cowdung with four parts of water, or the collected drainage of the stable and cow-house. It has been found advantageous to plants cultivated in stoves to apply even a liquid manure, composed of six quarts of soot to a hogshead of water; and, although this is a very un-chemical mixture, yet it has been found by Mr. Robertson to be peculiarly grateful and nourishing to Pines, causing them to assume an unusually deep, healthy green; and, for stoved Mulberry, Vine, Peach, and other plants, the late Mr. Knight, of Downton, employed a liquid manure, composed of one part of the dung of domestic poultry and four to ten parts of water, with the most excellent result."—C. Johnson on *Fertilisers*.

Guano Liquid Manure.—Ten gallons of water will readily dissolve, or keep suspended in a state of minute division, about 50 lbs. weight of guano. When applied to plants not more than five ounces should be added to that quantity of water. If it is made stronger, it injures or kills the plants to which it is applied.

Sheep's-dung, if employed for making liquid manure, should be a peck to thirty gallons.

When *cowdung* is used, boiling water should be first poured upon it, as it is apt to be full of destructive larvæ.

Sulphate of ammonia, and any other salt of ammonia, must not be used more than a quarter of an ounce to each gallon.

The rule applicable to all these liquid manures is—*Give it weak and often*.

RAPE-CAKE.—We have given an analysis of this refuse of Rape-seed at p. 158, from which it is apparent that, though inferior in fertilising constituents to guano and night soil, yet it is very valuable as a manure. It is most efficacious on clayey soils, and in moist seasons. It should be reduced to a fine powder and sown thinly in the drills with the seed. We have found it very valuable when so applied with Turnips, Peas, and all flower-seeds.

Cabbages are particularly benefited by having their roots dipped into a thin paste, made by mixing powdered Rape-cake with water at the time of inserting the plants by the dibble.

Rape-cake powder is extremely disliked by wireworms, and other insect-vermin which prey upon the roots of plants. It repulses these marauders if mixed with the soil about the roots.

BONES AND SUPERPHOSPHATE OF LIME.—Bones are beneficial as a manure, because their chief constituent (phosphate of lime) is also a constituent of all plants; and the gelatine which is also in bones is, of itself, a source of food to them. The bones of the ox, sheep, horse, and pig, being those usually employed, their analyses are here given:—

	Ox.	Sheep.	Horse.	Pig.
Phosphate of lime.....	55	70	68	82
Carbonate of lime.....	4	5	1	1
Animal matter	33	25	31	47

The bones must be applied to the crops in very small pieces, or in powder; and ten pounds, at the time of inserting the seed, are enough for thirty square yards, if sown broadcast; and a much smaller quantity is sufficient if sprinkled along the drills in which the seed is sown. There is no doubt that bone-dust may be employed with advantage in all gardens and to all garden crops; but it has been experimented on most extensively with the Turnip and Potato, and with unfailing benefit. Mixed with sulphur, and drilled in with the the Turnip-seed, it has been found to preserve the young plants from the fly. Mr. Knight found it beneficial when applied largely to stone-fruit at the time of planting; and it is quite as good for the Vine. To lawns the dust has been applied with great advantage when the grass was becoming thin. As a manure for the shrubbery, parterre, and greenhouse, it is also most valuable; and, crushed as well as ground, is employed generally to mix with the soil of potted plants. Mr. Maund finds it promotes the luxuriance and beauty of his flowers. One pound of bone-dust mixed with twelve ounces of sulphuric acid (oil of vitriol), and twelve ounces of water, if left to act upon each other for a day, forms superphosphate of lime, a wine-glassful of which has been found beneficial to Pelargoniums. Applied as a top dressing, mixed with half its weight of charcoal dust, it is a good manure for Onions, and may be applied at the rate of nine pounds to the square rod. There is little doubt of this superphosphate being good for all our kitchen-garden crops, being more prompt in its effects upon a crop than simple bone-dust, because it is soluble in water, and, therefore, more readily presented to the roots in a state for them to imbibe. Bones broken into small pieces are generally used as drainage for Pelargoniums and other potted plants.

CUBIC PETRE is named by chemists nitrate of soda, being composed of sixty-two parts nitric acid, and thirty-eight parts soda. It is beneficial when applied to Carrots, Cabbages, Beet-root, and lawns. One pound sprinkled over the surface of thirty square yards is a sufficient quantity. Applied as a liquid manure to Pinks, Carnations, Chrysanthemums, Lettuces, Celery, Fuchsias, and Dahlias, it has been found to invigorate them highly. For this purpose one pound should be dissolved in twelve gallons of water. Nitrate of soda destroys the slugs which it touches.

HOUSE SEWAGE.

THE papers of your correspondent on this subject have much interested me. I live in a house which stands alone, with a large garden round it. A tank was built below ground in a field hard by some years since, apparently with some such object as that recommended in your papers—i.e., utilising the sewage. It is closed, and at certain intervals has to be emptied. It overflows naturally, and the overflow runs through a drain formed of earthenware-pipes into an open ditch. Would your correspondent in such a case advise us to form a reservoir to catch this overflow, and use it? or would you have us set to work with a pump, and pump the contents of the tank into a large water-butts containing a filter formed on the plan explained in your No. 582?

It has been suggested to me that this tank now *filters itself* naturally; but I am inclined to think that there would be but little strength for purposes of manure in the present overflow, which is probably little better than dirty water. Our gardener has looked at it, and this is his opinion:—he thinks this is merely the water that comes from the waste of the kitchen-pump; and though it has passed into the tank, it is probably not useful as liquid manure.—C. R.

[Whether the “overflow” is merely dirty water, depends upon whether the rain from the house-roof is allowed to run into the tank, and the overflow is collected in rainy weather. Under those circumstances it would be little better than dirty water. If

the rain from the roof does not go into the tank, then the “overflow” at all times is the most valuable part of the sewage—the liquid contains nearly all the fertilising constituents—the *black sediment, comparatively, is valueless as a manure*. This is contrary to old opinions; but, nevertheless, it is quite true.

We would not recommend you to have either a second tank or a tub-filter, but merely to place a cinder-sifting wire-sieve beneath the mouth of the pipe which delivers the sewage into the tank. This sieve will retain all the insoluble substances, and may be emptied occasionally as it becomes full. Then have a common lifting-pump with its gutta-percha hose, or leaden pipe, reaching to within about two feet of the bottom of the tank. If the pump is kept going daily, all the liquid will be of uniform strength. The soapsuds and kitchen-sink water are all valuable.]

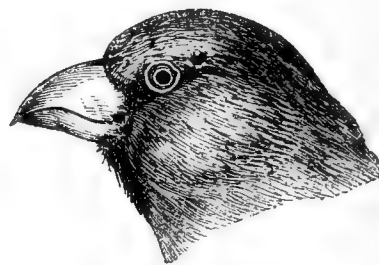
THE CANARY AND THE BRITISH FINCHES.

(Continued from page 99.)

2nd.—THE HAWFINCH (*Loxia coccothraustes*).

French, Le Grosbec.

German, Der Kernbeisser.



THE Hawfinch is the largest of our English birds of this genus. It is about seven inches long and very stoutly made. The beak is conical in shape, but very thick and large in proportion to the bird and exceedingly powerful, of a flesh colour inclining to black or dark blue at the point. The general plumage is somewhat of a drab colour, inclining to chestnut on the upper parts, greyer beneath. Most of the tail feathers and the large wing feathers are black, having a large white spot on the inner vein. Some of the wing feathers have a dark blue spot near their extremity; at the base of the beak is also a black mark with a black spot beneath it.

The male and female are very much alike, except that the hen is rather duller in colour and slightly larger.

In a wild state they are shy and not very plentiful. They are said to be found in Epping Forest. I have met with them at Bennenden and Chevening, Kent. They feed on beech-mast, the seeds of the hornbeam, the kernels of haws and holly-berries, as also many other berries and kernels. In the neighbourhood of Epping Forest they are said to be destructive to green peas. Bechstein says they do much damage to the cherries, which they split open for the kernel; but they are too rare in this country to do much damage. While living at Bessels Green I had in my garden a fine yellow-berried holly that was visited by about three pairs of these birds every winter; and I have seen as many as eleven in one flight, but I could never induce them to enter any trap.

A cock I had in confinement was very good-tempered and docile, and paired with a hen Canary; but, wishing to pair him with two hens I had at the same time, I separated him from the Canary—a proceeding I have ever since regretted, as I have no doubt they would have bred, but I could never afterwards get him to pair.

The two hens, however, which I had at the same time were exceedingly quarrelsome and spiteful. I put them in a large corner cage with the cock; but they beat him so unmercifully I was obliged to take him out. Then they attacked each other; and one morning I found one almost scalped, her sister having broken her wing and bitten off the end of her beak, that I was obliged to kill her.

The song of the cock bird is inferior, though it contains some pleasing notes; but their continual harsh cry of “itz, itz” is unpleasant to some persons. The nest is often built in a fruit tree or in a thick bush, and formed of roots and twigs. The hen lays from three to five blunt eggs of a greenish-grey colour,

spotted with brown and streaked with black (something like the egg of a Chaffinch, but larger). If taken from the nest they may be brought up so tame as to follow their feeder about.

In confinement Canary-seed seems best adapted to them for their general food, with an occasional change of millet, oats, or buckwheat. Apple-pips, kernels of stone fruit, or nuts, or even a few grains of hemp-seed, may now and then be offered as a treat to tame them, and induce them to peck from the hand.

Bechstein observes that, although contrary to the habits of other birds of this genus, he has seen them fly after the cock-chafers, catch them in the air, and eat them on the top of a tree; thus showing the Hawfinch does even some good to the agriculturist.—B. P. BRENT.

A FAILURE IN PEACH-GROWING AND ITS CAUSE.

I HAVE enclosed a couple of the roots which I have taken from the trees, that you might be the better enabled to judge of the state those trees were in which were not entirely dead. I can assure you, was the reply to a question several times repeated during this last summer, that this border was prepared, and received the approbation of many who thought themselves good judges of the soil best suited to those trees; but as soon as any person who really was a judge saw them, he could see at a glance that there was something gnawing at their roots which was sure to prove fatal to them. Within the last six years this border has been twice planted with Peaches and Nectarines; and it appears that, if they had had the galloping consumption, it would even then have been impossible for them to have gone off more quickly. If I had had to pay for them I should have thought it something worse than a pocket consumption.

This is often the case with Peach-borders, although the trees do not always go off in such a steeplechase manner as those above described. In too many cases it is the proprietor's own fault; for it is too often the case now-a-days for a gentleman when choosing a gardener to choose a man who has been working at some large establishment, where, generally speaking, every man is confined to different parts of the business, having the same particular kind of work to follow very little short of the whole year through: therefore such men must be totally unacquainted with the other practical parts of the science of gardening. Nevertheless, this is a truth; and such men as these are installed in small places, and in many instances with nothing more for a recommendation than that they have worked for my lord or lady so-and-so for so long. Some of them are entirely uneducated; while others have a little knowledge of

reading and writing—but the names of their plants on the labels are spelled in that manner that, if you did not know it to be different, you would be led by the names attached to believe that you had all the new plants of the class you were looking at that were then known under your eye, if such might be called plants. Then what is the result in the long run? Why, the old adage is learned; for there is a great deal more experience bought than is looked upon with a pleasant eye by the different proprietors; and many are led to say that they will give it one more trial, and if that do not answer they will give it up altogether.

But this seems getting away from my Peach-border, or rather a roundabout way of getting at it. The so-called prepared border was no more fit for the roots of the Peach and Nectarine than the self-called gardeners above described are to manage them; for if this border had been collected from all the worst soils known, it would have been an impossibility to have had a worse mass accumulated together for a border for any kind of fruits: it was a mixture of lime rubbish, blue clay, and a coarse heavy soil, with the exception of about a couple of wheelbarrowfuls of new loam to each tree, which was far too deep for any of their roots ever to reach. Some of the old jobbing-gardeners in this town told me that neither Peaches nor Nectarines would grow in

this neighbourhood, and pointed me out several gardens where they said they never had and never would. And why is it? Because they are planted in low, cold, damp, undrained borders, which have been receiving nothing in the shape of soils for the last twenty years, but have had their yearly allowance of stable manure, which has lent a helping hand towards their destruction. This was just the case with my border. Had the border been planted a hundred times following, the trees would all have died if they had been again planted in the same soil and received the same treatment the others had before them; for, in the first place, they were planted nearly a foot too deep, and, in the second, they had every winter a lot of stable manure dug in around their roots. Either the deep planting or the stable manure would sooner or later prove fatal in almost any soil; but when the bad soil, deep planting, and the stable manure are combined, they are as sure of proving fatal to the trees that are planted in such soil as a small dose of poison administered once a-week would to a human being.

It matters not in what department of a garden a failure is, or whether it is on fruit or flowers. What a number of opinions you are sure to hear from those who see it; and some of them so ridiculous and so entirely against Nature, that it is scarcely possible to refrain from laughing at some of the absurd remarks. Some seven or eight years ago this wall was covered with Plum and Pear trees, which were just grubbed out, leaving all the old roots in. When the Peach trees were planted there seems to have been a semicircular hole dug, extending about a yard from the wall to a depth of about thirty inches where the new loam was put; then some manure; and then the trees, with the greater part of their roots fully twenty inches under ground, without the least drainage. Supposing they had been planted without the manure, they could not even then have survived when the roots reached the old mould; but that they never did, as appears to have been expected. As it was, sudden death, I might almost term it, has grasped hold of them twice following; and now the question is, Will it again? Some of the old hands think it will; but either they or I in a very short space of time will be doomed to disappointment.

At the lower end of my border is a large sewage-drain, which runs right through the garden from the house; and at the front of my border, or where it terminates—that is, against the walk, I have put in a drain which leads into the main drain. From this drain to the wall I have put in some broken bricks and rubble; and immediately on the rubble underneath each tree, about four inches below the roots of the trees, I have placed some well perforated slate-tiles to prevent any roots from running deeper until they extend further than the tiles, which are about thirty inches each way. Then the whole of my border is filled up with rich, unctuous, slightly sanded maiden mould, which was taken from a field that had been laid down for forty years. What I have used was the top spit, which was taken off about two years ago, and has been lying fully exposed to the atmosphere until now. About five years ago I planted a small Peach-border at the west end of this same county (Wilts), and about the same distance from the river Avon as this one is situated. Now the trees are in a very healthy and fruit-bearing state, the border prepared similar to the one above described. The trees ripen their wood very early in the season; and when that is the case it is very seldom the spring frosts tell on them as they do on those which have not well ripened their wood, which is often the case unless the borders are composed of the right material and the drainage thoroughly attended to.—A. J. ASHMAN.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 165.)

PEARS.

Philippe Delfosse. See *Beurré Delfosse*.
Philippe de Pâques. See *Easter Beurré*.
Pickering Pear. See *Uvedale's St. Germain*.
Pickering's Warden. See *Uvedale's St. Germain*.
Pine. See *White Doyenné*.
Piper. See *Uvedale's St. Germain*.
Piquery. See *Urbaniste*.
Pitt's Calabasse. See *Calabasse*.

PIUS IX.—Fruit large, conical, and regularly formed. Skin of a deep, clear yellow colour, with a blush of red on the side next the sun, considerably covered with streaks and flakes of russet. Eye open, slightly depressed. Stalk thick and woody, very short. Flesh melting, juicy, sugary, and highly perfumed.

An excellent pear. Ripe in September. The tree is hardy, of small habit, forms a nice pyramid, and is a good bearer.

Plombgastelle. See *Beurré d'Amanlis*.

Poire de Prince. See *Chair à Dames*.

Pound Pear. See *Black Worcester*.

Pound Pear. See *Catillac*.

Precel. See *Passe Colmar*.

Présent de Malines. See *Passe Colmar*.

Présent Royal de Naples. See *Beau Présent d'Artois*.

PRÉVOST.—Fruit rather large, roundish-oval. Skin clear golden yellow, with a bright red blush on the exposed side, and marked with flakes of russet. Eye open, not deeply sunk. Stalk about an inch long. Flesh fine-grained, half-melting, and half-buttery, pretty juicy, and highly aromatic.

A good late pear. Ripe from January to April; but unless grown in a warm soil and situation it rarely attains the character of a melting pear.

PRINCE ALBERT.—Fruit medium sized, pyriform. Skin smooth, of a deep lemon-yellow colour, and frequently with a blush of red next the sun. Eye small and open, set in a shallow basin. Stalk an inch long, not depressed. Flesh yellowish-white, melting, juicy, sugary, and richly flavoured.

An excellent pear, in use from February till March. The tree is a hardy and vigorous grower, and forms a handsome pyramid.

Prince's Pear. See *Chair à Dames*.

Princesse de Parme. See *Marie Louise*.

Pucelle Condesienne. See *Passe Colmar*.

Pyrole. See *Jaminette*.

RAMEAU (Surpasse Reine).—Fruit large, oblong-oval, and uneven in its outline. Skin lemon-yellow, mottled and dotted with russet. Eye open, slightly depressed. Stalk about an inch long, not depressed. Flesh yellowish, half-melting, juicy, sweet, and perfumed. In use from January till March.

Red Achan. See *Achan*.

RED DOYENNÉ (Doyenné d'Automne; Doyenné Crotté; Doyenné Galleux; Doyenné Gris; Doyenné Jaune; Doyenné Rouge; Doyenné Roux; Grey Doyenné; Neige Grise; St. Michel Doré; St. Michel Gris).—Fruit medium sized, obovate. Skin yellowish-green, but entirely covered with thin, smooth, cinnamon-coloured russet, and sometimes with a brownish-red tinge on the side next the sun. Eye small and closed, set in a narrow depression. Stalk three quarters of an inch long, inserted in a narrow, rather deep cavity. Flesh white, tender, melting, very juicy, sugary, and vinous.

A first-rate hardy pear. Ripe in the end of October. The tree is an excellent bearer, and forms a handsome pyramid.

Regentin. See *Passe Colmar*.

REINE DES POIRES.—Fruit medium sized, obovate. Skin smooth, pale yellow, and dotted with russet on the shaded side, and bright red next the sun. Eye small and open, placed in a small, irregular basin. Stalk an inch long, inserted in a small cavity. Flesh yellowish, tender, juicy, and sweet. Ripe in October.

Roberts' Keeping. See *Easter Bergamot*.

Roi Jolimont. See *Doyenné d'Été*.

Roi de Wurtemberg. See *Glou Morceau*.

RONDELET.—Fruit below medium size, roundish. Skin greenish-yellow, considerably covered with very fine and

smooth pale brown russet, having an orange tinge next the sun, and speckled with large grey dots. Eye generally wanting. Stalk an inch long, inserted in a narrow cavity. Flesh fine-grained, buttery and melting, very juicy, rich, sugary, and with a powerful perfume of musk.

A most delicious pear. Ripe in the beginning and middle of November. The tree is quite hardy, an excellent bearer, and succeeds well as a standard or pyramid.

Rose. See *Summer Rose*.

ROSTEITZER.—Fruit small or below medium size, pyriform. Skin yellowish-green, with reddish-brown on the exposed side. Eye open, set in a shallow, plaited basin. Stalk an inch and a half long, not depressed. Flesh melting, very juicy, sugary, vinous, and aromatic. Ripe in the end of August and beginning of September.

ROUSSE LENCH.—Fruit large, oblong or oval. Skin pale green, changing to lemon-yellow, with a slight russet covering. Eye large and open, like that of a Jargonelle. Stalk an inch and a quarter long, inserted without depression. Flesh yellow, buttery, juicy, sugary, and pretty well flavoured. Ripe in January and February.

Rousselet d'Anjou. See *Bezi de Caissoy*.

ROUSSELET ENFANT PRODIGE.—Fruit medium sized, pyriform. Skin green, considerably covered with rough-brown russet, and with a brownish-red tinge on the exposed side. Eye large and open, set in a shallow basin. Stalk about an inch long, obliquely inserted without depression. Flesh greenish-white, melting, very juicy and sugary, and with a rich, vinous, and musky flavour.

An excellent pear. Ripe in December. The tree is hardy, a good bearer, and forms a handsome pyramid.

Rousselet Jamain. See *Heliole Dundas*.

ROUSSELET DE MEESTRE.—Fruit large, obtuse-pyriform or pyramidal. Skin smooth and shining, of a golden yellow colour, thickly dotted all over with large brown russet freckles. Eye open, set in a wide, flat basin. Stalk an inch and a half long, not depressed. Flesh half buttery, firm, pretty juicy, and well flavoured, but with nothing to recommend it. Ripe in October and November.

Rousselet Musqué. See *Rousselet de Rheims*.

Rousselet Petit. See *Rousselet de Rheims*.

ROUSSELET DE RHEIMS (Rousselet Musqué; Rousselet Petit).—Fruit small, pyriform, and rounded at the apex. Skin green, changing to yellow at maturity, and thickly covered with grey russet specks, tinged with brown next the sun. Eye small and open, slightly depressed. Stalk an inch long, thick and not depressed. Flesh half-melting, rich, sugary, and highly perfumed.

One of the oldest and best early pears. Ripe in September, but does not keep long.

ROUSSELET DE STUTTGART.—Fruit medium sized, pyriform or pyramidal. Skin yellowish-green, with brownish-red on the side next the sun, and strewed with dots. Eye open, set in a shallow basin. Stalk upwards of an inch long, inserted without depression. Flesh half-melting, very juicy and sugary, with a rich and perfumed flavour.

A good early pear. Ripe in September. The tree is an excellent bearer, and forms a handsome pyramid.

Royal d'Angleterre. See *Uvedale's St. Germain*.

Royal Tairlon. See *Easter Bergamot*.

Sabine. See *Jaminette*.

Saffran d'Automne. See *Spanish Bon Chrétien*.

Saffran d'Été. See *Summer Bon Chrétien*.

ST. DENIS.—Fruit small, turbinate, and uneven in its outline. Skin pale yellow, with a crimson cheek, and thickly dotted with crimson dots. Eye open, set in a shallow basin. Stalk an inch and a half long, not depressed. Flesh half-melting, very juicy and sweet, with a fine aroma.

A nice early pear. Ripe in August and September.

ST. GERMAIN (Arteloire; Inconnue la Fare; Lafare;

St. Germain Gris; *St. Germain d'Hiver*; *St. Germain Jaune*; *St. Germain Vert*).—Fruit large, oblong-obovate, rather irregular in its outline. Skin pale greenish-yellow, thickly covered with small brownish-grey dots and sometimes tracings of russet. Eye open, set in a narrow, uneven depression. Stalk an inch long, curved, and inserted without depression. Flesh white, very juicy, buttery and melting, with a sprightly refreshing sugary and perfumed flavour.

A fine old dessert pear, in use from November till January. The tree requires to be grown against a wall.

St. Germain d'Été. See *Summer St. Germain*.

St. Germain Gris. See *St. Germain*.

St. Germain d'Hiver. See *St. Germain*.

St. Germain Jaune. See *St. Germain*.

St. Germain de Martin. See *Summer St. Germain*.

St. Germain Vert. See *St. Germain*.

St. GHISLAIN.—Fruit medium size, obtuse-pyriform or turbinate. Skin smooth, clear yellow, with a greenish tinge, and with a blush of red next the sun. Eye open, slightly depressed. Stalk an inch to an inch and a half long, inserted without depression. Flesh white, very juicy, buttery and melting, rich, sugary, and vinous.

An excellent pear. Ripe in September.

St. Jean. See *Amiré Joannet*.

St. Lambert. See *Jargonelle*.

St. LÉZIN.—Fruit very large, pyriform. Skin of a dull greenish-yellow colour, covered with flakes of russet. Eye open, set in a deep furrowed basin. Stalk two inches long, not depressed. Flesh firm, crisp, juicy, and sweet.

A stewing pear, in use during September and October.

St. Marc. See *Urbaniste*.

St. Martial. See *Angélique de Bordeaux*.

St. Martin. See *Winter Bon Chrétien*.

St. Michel. See *White Doyenné*.

St. MICHEL ARCHANGE.—Fruit above medium size, obovate. Skin smooth and shining, of a golden-yellow colour, speckled with crimson on the shaded side, and with a bright crimson cheek on the side next the sun. Eye small and closed, set in a narrow depression. Stalk half an inch to an inch long, not depressed. Flesh yellowish-white, tender, melting and juicy, with a sugary juice, and a very agreeable perfume.

A very excellent and beautiful pear, covered with crimson dots like *Forelle*. Ripe in the end of September.

St. Michel Doré. See *Red Doyenné*.

St. Michel Gris. See *Red Doyenné*.

St. Nicholas. See *Duchesse d'Orléans*.

St. Samson. See *Jargonelle*.

Scotch Bergamot. See *Hampden's Bergamot*.

Scot's Cornuck. See *Charnock*.

(To be continued.)

DINNER TO MR. GEORGE EYLES.

ON Wednesday last a number of gentlemen connected with the Crystal Palace Flower Shows, and other friends of Mr. George Eyles, entertained that gentleman at dinner at the Albion Tavern, Aldersgate Street, to congratulate him on his appointment to the superintendence of the new garden of the Horticultural Society at Kensington Gore. About forty gentlemen sat down to dinner, and the chair was occupied by Mr. JOHN SPENCER, Bowood.

On the cloth being removed, the Chairman proposed the usual loyal toasts. "Her Majesty the Queen," "His Royal Highness the Prince Consort, and the other members of the Royal Family." In proposing the latter toast he said, that His Royal Highness had on all occasions shown himself to be an active promoter of the Arts and Sciences, and among these the science of horticulture had received a large measure of his support and patronage. The Horticultural Society had done well in electing His Royal Highness as President; and from the efficient way in which he had always done his duty in the various positions he had occupied, there could be no doubt but that the Society would greatly benefit

by having made such a choice. It was to him that the establishment of the new Gardens at Kensington Gore was mainly attributable, and he (the Chairman), believed that this step would greatly contribute to the advantage of the Society.

The CHAIRMAN in proposing the toast of the evening, "Our guest—Mr. Eyles," said, "Ever since the opening of the Crystal Palace, at Sydenham, Mr. Eyles had been initiated as the superintendent of the interior of that establishment, and to him was entrusted the arrangement and management of the plants and flower-borders. Of the admirable way in which that department had been carried out, not only those present but all who had seen them could bear testimony; and when it was determined by the Crystal Palace Company to establish a series of Flower Shows, this arduous duty was also entrusted to Mr. Eyles. To him the merit is due of having been mainly instrumental in making these exhibitions successful. No one knows but those who have been mixed up in such exhibitions the great anxiety and management that are required; for it is only by business habits, kindness of manner, and courtesy to all, that success can be commanded. These qualifications our friend is amply possessed of; and it was by bringing these to bear upon the Crystal Palace Exhibitions that they became so successful. The company now assembled, embracing as it does some of the leading nurserymen, seedsmen, and gardeners in town and country, are evidence enough of the way in which Mr. Eyles has made himself agreeable to exhibitors—their object being to testify, in the most public manner possible, their approbation of the way in which he has conducted the duties formerly entrusted to him; and to congratulate him on his promotion as superintendent of the Gardens of the Horticultural Society. The post which Mr. Eyles has undertaken to fill is one of no ordinary importance. We are told that this garden is to be one of the most magnificent that has hitherto been formed—that it is to be the greatest work for the promotion of horticulture that has ever been undertaken; and we have no doubt Mr. Eyles will be thoroughly able for the great work that is before him. Practical horticulture is not yet dormant in this country; and if the Horticultural Society do not do its duty and carry out the practical operations of horticulture, other societies will arise and do the work. Mr. Eyles will have the support of all friends of horticulture; and there is no doubt he will carry out the wishes of the Horticultural Society, and the horticultural community." Turning to Mr. Eyles the Chairman said, "Our best wish then, is, that health and happiness may attend you."

Mr. EYLES.—"If I were to attempt to express what I feel, I am sure words would entirely fail on the present occasion. The greatest recompence I have for the labour and difficulties I had to contend with in conducting the Crystal Palace Exhibitions, is to feel that the exhibitors and the friends present are satisfied with what I have done. I thank those present for the kindness they have exhibited towards me. I am fully impressed with the importance of the new position I am about to occupy; it is one which will require great exertion, and will be surrounded with many difficulties, and I feel that I shall still require your kindness extended towards me. I am always willing to receive advice from anybody, and any suggestion a friend has to make will be acceptable. I hope by the assistance that will be afforded me, and the support I shall receive, to make one of the best horticultural effects that has yet been produced. I thank you most cordially for the great kindness that has been shown me. Many have failed to obtain the best feelings of their fellow men; but I am proud to think that I have tried and been successful."

Mr. VEITCH proposed "Success to Horticulture." This is a subject in which all are interested, from the peer to the peasant; and he was happy, as a member of the Council of the Horticultural Society, to say that the Council had shown their interest in horticulture by appointing Mr. Eyles to his new sphere of labour. The great objects of the Society should be to encourage and develope practical horticulture, to give encouragement to young gardeners, and to take the lead as the greatest and most influential horticultural body. Gardening gives pleasure to the higher classes, and they were the people from their wealth and position to encourage it. He was happy to say the Society had the support of these classes; and he saw no reason why, with the support of practical horticulturists, it should not now go on and prosper.

Mr. EDMONDS proposed "The health of the Chairman," whom he characterised as an example to all young gardeners.

Mr. SPENCER returned thanks.

THE CHAIRMAN proposed "Prosperity to the Gardener's

Benevolent Institution," which was responded to by Mr. Robert Wrench.

Mr. SOLOMONS proposed "Prosperity to the Horticultural, Royal Botanic, and Pomological Societies;" which was responded to by Mr. Bohn on behalf of the Horticultural, and by Mr. Hogg on behalf of the Pomological Society.

THE CHAIRMAN proposed "The Exhibitors of the Great Flower Shows," coupled with the names of Messrs. Veitch, Lee, and Carson.

Mr. VEITCH returned thanks.

Mr. WRENCH proposed "The Health of Mr. Andrew Henderson and the Committee of Management;" to which Mr. Henderson replied.

Mr. TURNER proposed "The Health of Mr. Bohn and the Patrons of Horticulture," which was responded to by Mr. Bohn.

Mr. HOGG, "Prosperity to the Nursery and Seed Trade," coupled with the names of Messrs. Lee, Fraser, and Glendinning; to which Mr. John Lee replied.

THE CHAIRMAN, "Health of Mr. Moore and the Judges of the Great Exhibitions;" to which Mr. Moore replied.

Mr. GRAY, "The Horticultural Press." And after several other toasts the company retired, having spent a social and pleasant evening together; to which Messrs. Staples greatly contributed by the excellent arrangements, and the great satisfaction which their preparations elicited.

TO CORRESPONDENTS.

SOIL OF PLANTS (*J. Ridley*).—What do you mean by this? If you mean "soil for growing plants in," then the book to give you information on the point is the *Cottage Gardeners' Dictionary*, price 8s. 6d.

ICE-STACKS AND ICE-HOUSES (*Kilkenny*).—Buy our numbers 114 and 416.

CLAYEY AND SHALLOW FLOWER-BORDER (*A Dorset Subscriber*).—Lime would help to render it more friable; but it would injure your Roses unless you also supplied them well with waterings of house sewage. You had better deepen your border by putting on six or eight inches in depth of a mixture of equal parts road scrapings, old tan, and soil of the border burnt. The latter ingredient mixed with old tan would do.

BUILDING A GREENHOUSE (*E. T. D.*).—We shall gladly answer any questions, but cannot recommend tradesmen. Have a plan drawn, or select one, and then ask two or three builders what they will construct it for. Have you seen our "Greenhouses for the Many?"

HEATING BY GAS (*G. A. A.*).—We have effectually heated a greenhouse by a common gas-stove. The only precautions necessary are to have a chimney, or tube, to carry off into the open air the results from the combustion of the gas. It is also desirable to have a vessel of water on the stove to keep the air duly supplied with moisture. If these precautions are adopted, we can testify that a gas-stove is *not* injurious to plants.

PROTECTING WALL-TREE BLOSSOMS (*E. Warren*).—At page 148 of our number for December 6th, there is a mode of protecting without glass. If you will buy "The Gardeners' Almanack for 1860," just published, you will find at pages 24 to 26, every mode of protection detailed.

NAME OF MOSS (*H. Butterfield*).—We cannot name a Moss from so imperfect a specimen.

FERNS (*Rev. A. M.*).—There is no work on foreign Ferns similar in matter and price to Johnson's "British Ferns Popularly Described."

DRAWING PLANS OF BEDS.—A *Lover of a Garden* who seeks information on this subject in our number issued on the 29th of November, may write to Mr. W. Prince, gardener to W. C. James, Esq., Pontnewydd Works, near Newport, Monmouthshire.

SOWING HAWTHORN-BERRIES (*T. Mather*).—These are collected into a heap in autumn, covered with soil, and allowed to remain there until the second spring after they are gathered. They are then sown thinly in drills, half an inch deep, and the seedlings come up the same year. This is the only mode adopted for raising the plants for "Quick" hedges. We incline to believe, that if the Hawthorn-berries were allowed to remain on the bushes all the winter and were gathered and sown in the spring they would vegetate the same year. Have any of our readers tried this?

SAXIFRAGA HYPNOIDES.—A correspondent, *C. Jayne*, says he has applied to several nurserymen for this unsuccessfully. Will some of our readers inform us where it is to be obtained?

CHRYSANTHEMUMS (*Rose*).—A *reflexed* flower has its petals bent backwards from the centre of the flower; an *incurved* has its petals bent in towards the centre of the flower; a *quilled* has its petals' edges approaching each other so that each petal looks like a small pipe; a *tasselled* is a loosely-petalled flower; and the *Anemone-flowered* has a centre like a German Aster, with a fringe round it of quilled or reflexed petals. If you refer to our number 496 you will find a detail of the culture.

VINE PRUNING (*A Subscriber*).—There is no need to confine a Vine to a single stem; but whether one stem or several stems, all may be pruned alike. You have done quite right in allowing them to increase a little in length annually. The defect to be avoided is allowing too much of the year's shoot to remain when it is autumn-pruned; for if this mistake is made it tends to render the lower part of the Vine barren. Your coloured diagrams give a clear idea of your mode of treatment, and it seems quite correct. Your berry-within-berry Grapes are not usual, but have been frequently observed this year. In answer to your friend's query, bearing shoots *will* come from old wood quite as well as from the wood of last year. We cut away annually all the laterals of the year that have borne, and the bearing shoots are produced next year from buds in the old wood

round the base of the laterals so cut away. We leave no part of the laterals, but cut them close to the old wood.

TRIMMING CERASTIUM TOMENTOSUM (*J. Styles*).—You must do so every year, if you grow this Cerastium. It runs very fast, and soon covers ten times more space than can be allowed for it, unless it is high up on rock-work, where it may spread over the hanging cliffs as it lists. The best plan is to take up the old plants in April every year, and to cut off all the old herbage, then divide the roots into little patches, when one good plant will make fifty of sufficient size. Plant the bits six inches apart in a front row, and four inches from the grass or Box-edging; and when the space for it is covered, keep it within bounds by the sheep-shears, or any strong scissors, cutting away both sides straight, and the top level. The clippings may remain on the ground. The white colour is the same dead or alive.

GLASS FOR GREENHOUSES, &c. (*A Constant Subscriber*).—For all your houses we would be content with the best British sheet-glass, and to have the roofs fixed, and ventilation otherwise provided for; but were we to have our wish in minutiae, we would have Hartley's best rough for Camellias and Azaleas; sheet-glass for Geraniums and Roses, with means of shading if not Hartley's; for stoves and orchids, Hartley's or the means of shading; ditto for Cucumbers; but if to be grown all the winter, we would prefer clear best British sheet.

WALL SIX FEET HIGH FOR TREES (*Idem*).—There can be no doubt as to trees doing in an orchard-house against your six-foot wall, or against the wall itself. If an orchard-house, you could raise the highest point two or three feet more, by having a span-roof, or a hipped-roof from your wall, and either an upright glass front or a lean-to front. If orchard-houses do not succeed, it is not because there is anything wrong in the principle. Against such a low, uncovered wall you may grow Peaches, Nectarines, and Apricots in great perfection, and that without resorting to horizontal training. All you have to do is to lessen the feeding-ground by a wall underground, three or four feet from the wall, or keep down luxuriance by root-pruning. We would much prefer the last, and when once the trees come to bear profusely, you will easily manage the luxuriance. It is just as easy to cut a rampant root as a rampant branch, and keeping this in view, there is nothing to prevent you having first-rate fruit on a six-foot wall. If this root-pruning be resorted to, about sixteen trees would be sufficient for the two hundred feet, and might be of—PEACHES: *Acton Scott, Bellegarde, Malta, Early Ann, Noblesse, Royal George, Royal Charlotte, and Late Admirable*; and of NECTARINES, *2 Violette Hâtive, 2 Elrue, 1 Roman, 1 Newington, and 2 Pitmaster Orange*.

PASSIFLORA BUONAPARTEA—STEPHANOTIS FLORIBUNDA—LUCULIA GRACISSIMA (*G. W.*).—We never did any good with *Passiflora Buonaparteana* in a cool greenhouse; but as its flowers drop we must come to the conclusion that the roots are too dry, or the temperature too low. They want an average of 60° at least to open freely. The *Stephanotis* blooms well either on spurs or young wood proceeding from wood well ripened last season. The *Luculia* should be let alone until it has done flowering and is pruned back; then select some cuttings of young shoots getting a little firm about three inches long, take them off close to the older shoot with a heel, cutting nice and fine, and insert these in sand, over sandy peat, under a bell-glass, or keep them for a few weeks shaded from sun; and then insert them in bottom heat, preventing damping by giving a little air at night. When struck and potted off, gradually inure to more air.

SHELTERING A NEWLY-REMOVED ARAUCARIA—SOWING FRUIT-SEEDS (*R. H. A.*).—It is a good and safe plan to moss up the trunks and great branches of some kinds of trees after transplanting; but Araucarias are not much of their number, as they carry leaves on trunk and branch at that end and size; but moss or mulch over the roots and up the trunk to the first leaves, and surround the tree, as they did at the Crystal Palace and answered so well. Four poles, one in each corner of a square, sufficiently large to allow free space to the branches of the protected tree, then cross-ropes to wattle Beech-branches on, or any branches with the dead leaves on, or better still, good Russian mats, and leaving an open space of four feet or so on the west side of the tree. This, and being open over the top, would allow sufficient light, and the dry winds and piercing sun would be kept off. February is the best time to sow Quince-seeds, and the stones of all our stone fruit; but, in truth, these stones may be set, or sown, or planted at any time after the fruit is ripe.

VARIOUS (*H. B.*).—We do not recollect about the boxes you refer to; but if you give our memory a refresher, we shall be glad to give you all the information we can. The Agapanthus should be dryish, if in pots and kept from severe frost; but not quite dry, or dust dry. The large fleshy roots should be kept quite full, not flabby. We are much obliged for the plan of the boiler heated by gas, but would have liked an estimate of the expense, so as to compare with a small boiler heated by hot water. Please to send us the estimate. There is no doubt but that gas will answer admirably; but the expense is the chief thing.

KEEPING A GREENHOUSE GAY EARLY IN THE YEAR (*An Old Surrey Subscriber*).—To your Hyacinths, Tulips, Primulas, and Jonquils, add Cinerarias, Calceolarias, Camellias, Epacris, Deutzias (of sorts), *Cytisus racemosus* and *proliferus*, *Genista Canariensis*, *Coronilla glauca*, *Acacia armata*, *juniperina* and *verticillata*, &c. The Manchester Red Celery is fine and large; Cole's and Seymour's white, crisp, and good-flavoured. If you cannot change your ground for Carrots and Turnips, as it is evidently too old, turn it up two feet deep, and in ridges; give it all the frost you can, by turning it and re-turning it, and give it a good dressing of lime or chalk, or burnt clay, getting it all well incorporated, and we have reason to think you would get good Carrots. If you could remove a portion of the earth, and substitute some peat earth much the same result would be obtained. Liming and well airing would be the easiest remedy.

CERASTIUM TOMENTOSUM AND CINERARIA MARITIMA (*Vale of Batron*).—If *Cerastium tomentosum* and the frosted-silver plant, the *Cineraria maritima*, were once named and described in THE COTTAGE GARDENER they were so, each of them, a score of times. From the very night on which Mr. Fleming discovered the value of *Cineraria maritima*, a dozen years back, in the drawing-room and saloons of the Duke and Duchess of Sutherland, as an imitation of a frosted-silver ornament, it has been advertised in THE COTTAGE GARDENER and discussed in a hundred ways; and it is to be found in every volume since 1850; and *Cerastium tomentosum* never ceased to be the front edging plant of every season since it came out at the Crystal Palace. How it looks, and how it does, and how to do it, and what to

do it with; also its size, its duration, its manner of growth, and everything about it have been given over and over again. However, we will repeat it for you. Both of them are hardy perennial plants. Nature intended the *Cineraria maritima* for a rock plant facing the sea from the shores of the Bay of Biscay, round by the Straits of Gibraltar, and on along the basin of the Mediterranean. It is only perfectly hardy, therefore, with us high up on rockworks, where it has stood all our frosts for the last forty-two years to our own knowledge. The plant is, in looks, much after the manner of the tall, nasty, yellow weed called Ragwort, which is seen on badly-farmed land; only that the leaves are silvery and more soft, and the stems more woody and more lasting, and rise to five or six feet in a few years in rich soil. It does not ripen seeds, but is easily got from cuttings in the spring, and less easily in the autumn. In flower-gardening young plants so obtained are the only right ones; and every nurseryman in the three kingdoms can sell it to any one who is likely to pay, as, if he has not got it, he can order it from his trade-houses, where no end of it is always kept on purpose. Being a hardy plant so far, and being less expensive than variegated Geraniums for edgings, it will hold its ground as such: and such is all we can add to the pages that this customer has occupied in our series. The *Cerastium tomentosum* is a hardy plant in the coldest parts of Europe; very low, very spreading, very fast growing, very good looking, very silvery looking, very simple and innocent-like, very easy to propagate, too easy to keep, as barrowloads of it must be got rid of every year of our lives where it is much used as edgings. But there is no seed from it—or, if there were, it would not pay for gathering; as a sixpenny plant, or a shilling patch of it, is quite enough to stock a garden of ten or twelve acres with enough of it. They can be had from any first-rate nurseryman.

MINIATURE GREENHOUSE (John Turner).—We presume your model greenhouse or frame is placed inside the common greenhouse. It seems much the same as the Waltonian Case spoken of so highly by Mr. Beaton, but without all its advantages, one of which is the moveable glass top. Your pipes should have risen instead of declined. Larger pipes, or more of them, would give you more heat; and less sand covering would give more heat in the air of the house. The damping must be neutralised by more air and a drier atmosphere. The too-much condensation you could greatly neutralise by a calico covering over the whole at night. If the outside of the glass is kept warm, there will be little condensation of vapour. With 60° and this cover, we think you would have heat for anything in winter. You will shortly see an article on atmospheric moisture, and also a notice of heating a small greenhouse from a gas-jet. We think, however, that you will succeed with your present arrangements, though we cannot commend them.

NAME OF PLANT (J. R. R.).—*Euonymus Europæus*, the common Spindle Tree, Prickwood, or Gatteridge Tree.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

DECEMBER 28th and 29th. SHEFFIELD AND HALLAMSHIRE (Fancy Pigeons). *Sec.*, Mr. Inman New, Sheffield. Entries close December 12th.
DECEMBER 28th and 29th. POULTON-LE-FYLDE. *Sec.*, Mr. J. S. Butler.
JANUARY 2nd and 3rd, 1860. PAISLEY. *Sec.*, Mr. Wm. Houston, 14, Barr Street. Entries close December 26th.
JANUARY 4th and 5th, 1860. PRESTON AND NORTH LANCASHIRE. *Sec.*, Mr. Henry P. Watson, Old Cock Yard, Preston. Entries close December 17th, 1859.
JANUARY 7th, 1860. BRADFORD. (Single Cock Show.) *Secs.*, Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford.
JANUARY 11th, 1860. DEVIZES AND NORTH WILTS. *Sec.*, Mr. G. Saunders Sainsbury, Rowde, Devizes. Entries close December 24th.
JANUARY 31st and FEBRUARY 1st and 2nd. CHESTERFIELD AND SCARSDALE. *Hon. Secs.*, Mr. J. Charlesworth, and Mr. T. P. Wood, jun. Entries close January 11th.
FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). *Sec.*, Mr. W. Houghton. Entries close Jan. 14th.
FEBRUARY 29th, and MARCH 1st, 1860. ULVERSTONE. *Sec.*, Mr. T. Robson.
N.B.—Secretaries will oblige us by sending early copies of their lists.

TREDEGAR POULTRY SHOW.

At the first Poultry Shows held in England—those at the Zoological Gardens, now many years ago, and long before even Birmingham thought of one, the classes were curiosities from the incongruous pens of which they were made up. No breed was understood by exhibitors, and the requirements of the judges were deemed utopian; but, as the pursuit grew in popularity and importance, it was found worth while to attend to the breeding and rearing of good specimens. Till then a really good fowl was only to be found in Surrey, Sussex, and parts of Kent. Other counties were content with the barn-door poultry, which occupied, and had occupied, yards from time immemorial without interference or improvement; unless it were now and then that a bird was kept because it was a present, or was bought on account of its beauty: this was the only introduction of new blood. In certain counties there were Game fowls of note; in others Bolton Bays and Bolton Greys. Lancashire had its Moonies. But all these were fancies. Poultry had not become part of the stock of a farm-yard. For a long time fowls had been looked upon as the producers of eggs, the occasional providers of a meal, and perhaps they paid for candles for the stable lanterns; but they were pool-pooled as stock, or as things of any value. Although they are far from receiving their deserts at

the hands of the agriculturist who has so good an opportunity of keeping them, yet they are now better looked upon, and are increasing in estimation. We are still behind; and we could not help thinking of the able remarks in *The Times*, when noticing the Birmingham Show and speaking of eggs, as we read in that paper of Dec. 4, that one of the Peninsular and Oriental boats brought as part of her cargo 251 cases of eggs.

Holland, France, and Belgium all send us poultry, and find a remunerative sale for it. We hope and believe there is something more encouraging "looming" in the future. We had last week to speak of the Arundel Show in connection with that of fat stock, where the principal prizes were given by the Duke of Norfolk; and now we have to do with the Tredegar Show held at Newport, Monmouthshire, and indebted for its chief prizes to Lord Tredegar. We therefore hope, as we are entitled to do, that poultry is being recognised as part of the stock of a farm. There are other features which all these shows present which are encouraging. The Dorking is, beyond dispute, the best table-fowl; and it is now discovered by all, that if a number of them are taken into a market, there is no sale for any others till they are sold. In the same way Spanish are beyond comparison the best egg-producers, because their eggs are double the size of ordinary ones. Now that which we said last week at Arundel holds good at Newport. The best table-fowls and the best layers were the strongest and best classes. Attention has been drawn to them; and they are not only found the most profitable in the yard, but the most saleable at the exhibition. We would not be thought to esteem other breeds lightly, as all have their useful points; but we are bound to notice these two. We believe these noblemen are setting a good example, and we hope it will be extensively followed. It may be the R.A.S.E. will see its mistake, and again make its meetings what they should be—the trysting-place and tilting-ground of all the inhabitants of a farm-yard.

The Tredegar Show was held on Tuesday, December 13th, and brought 280 pens. In noticing the classes we are compelled, save in some few instances, to refer to the prize list for names, as, at the time we write this, we have not access to a catalogue.

There were sixteen pens of excellent *Dorkings*. The best was 99, which not only took first prize for chickens, but also a special prize for the best pen of birds shown. We could not help noticing them as being of unusual merit, and were not surprised when we found they belonged to a relative of Mr. Towneley Parker. Thus the old strain that had triumphed so often at Bingley Hall has not degenerated in another county. Pen 98, was first for old birds, and these were very good. We can speak most highly of every pen mentioned in the prize list.

Nineteen pens of *Game*. Pens 182 and 193, first for adults and chickens; 175 and 176 second, all good and shown in capital condition.

Nineteen pens of *Spanish*. We may say of these as we have of many others lately, that we never saw classes with so few inferior birds; but sufficient care was not taken to select cocks with perfectly upright combs. These remarks do not apply to the prize birds; but some of those that were beaten would, perhaps, have done better had a different cock been selected. The chickens were better than the adults, and judging from them here and elsewhere, we anticipate for 1860 such Spanish as have seldom been seen. Good birds are the rule. Pens 128, 79, 209, and 129, were very good.

Brahmas made a tolerable show; but *Cochins* were very badly represented. The order of some late shows was reversed, the Silver were better than the Golden-pencilled *Hamburghs*. Mr. Conway James's old, and Mr. Llewellyn's young birds were highly meritorious. The old Golden-spangled were better than the young. In the Silvers, the drooping comb was fatal to many pens. It cannot be too strongly impressed on exhibitors that a falling or even a loose comb is a great, and in close competition a fatal, defect.

We can speak well of the *Polands*, especially the Golden and Silver-spangled. Some of the cocks, however, had spikes in front of the topknot, and this should be guarded against. We would not wish our Newport friends to think us hypercritical, as our only desire is to warn them against capital faults.

The Golden and Silver Sebrights were not good, but the *Game Bantams* were very beautiful, especially pen 198. The same may be said of the Black and White.

The *Distinct Varieties* brought as good Black *Hamburghs* as we have ever seen, and some excellent *Silkie*s.

Ducks are becoming thoroughly understood; and although among the Aylesburys there were some imperfect bills, yet, as a

whole, they must be spoken of in terms of commendation. The Rouens were very good, and mustered twelve pens. Here, as at Birmingham, an extra prize for the best pen of Ducks of any variety went to this breed, being awarded to pen 50.

The increase in the average weights of the *Geese* shown was as remarkable here as it has been elsewhere. Many were very heavy; and, taken as a whole, we have never seen a handsomer or better pair than that which took the first prize and belonged to Mr. Crawshay. They were closely run by 72 and 151.

The *Turkeys* deserved every praise, especially 221 and 35. Three other highly meritorious pens could only have high commendations.

The *Dorking* cocks were good. We would suggest that in Single Cock classes all ages should compete together. Being divided, 103 and 104 had prizes which they richly deserved.

Had there been three instead of one prize for adult *Spanish*, worthy specimens could have been found; but all the young birds were disqualified by falling combs.

The *Game Cocks* and *Cockerels* were fifteen in number, and good enough to deserve six high commendations, besides the two prize birds. They were much larger and heavier in these classes than we have seen of late. Pen 177, adult prize, was a beautiful bird; but 178, prize cockerel, was one of the best we ever saw. He won easily, although much disfigured by having fought through a window he broke to enable him to do so.

It will be seen by these remarks how fully poultry seems to be understood with regard to marketable breeds in this county. It must be highly gratifying to the noble and popular Promoter of it, who testified his interest in it by numerous purchases.

DORKING.—First, F. T. Parker, Rockfield House, Monmouth. Second, J. Logan, Maidee, near Newport. **CHICKENS.**—First, F. T. Parker. Second, W. C. James, Pontnewydd.

GAME.—First, L. Griffiths, Pontnewydd. Second, E. G. Jarvis, Itton, near Chepstow. **CHICKENS.**—First, E. Colston, Sunny Bridge, Brecon. Second, E. G. Jarvis.

SPANISH.—First, Mrs. C. A. Lewis, Glyn Pedr, Crickhowell. Second, R. Crawshay, Cyfarthfa Castle, Merthyr. **CHICKENS.**—First, J. H. Davis, York Place, Newport. Second, Mrs. C. A. Lewis.

COCHIN-CHINA, BRAHMA POOTRA, or MALAYS.—First, J. Hinton, Hinton, near Bath. Second, R. Crawshay, Cyfarthfa Castle, Merthyr. **CHICKENS.**—Prize, J. Hinton.

HAMBURGH (Golden-pencilled).—First and Second, J. Llewellyn, Plymouth Arms, St. Fagans, Glamorganshire. **CHICKENS.**—First and Second, J. Llewellyn, St. Fagans, Glamorganshire.

HAMBURGH (Golden-spangled).—First and Second, W. Cuff, St. Fagans, Glamorganshire. **CHICKENS.**—First and Second, W. Cuff.

HAMBURGH (Silver-pencilled).—First W. C. James, Pontnewydd. Second, J. Llewellyn, Plymouth Arms, St. Fagans, Glamorganshire. **CHICKENS.**—First, J. Llewellyn. Second, W. C. James.

HAMBURGH (Silver-spangled).—First, G. Hoskins, Blaendare Wharf, Newport. Second, J. Johnston, Llantarnam, near Newport. **CHICKENS.**—First, G. Hoskins. Second, H. Seaworthy, St. John's Cottage, Newport, Barnstable.

POLANDS (Black with White Crests).—First, R. Crawshay, Cyfarthfa Castle, Merthyr. Second, J. D. Whittaker, Morgan Street, Newport.

POLANDS (Golden).—First, Mrs. M. Brain, King of Prussia Inn, Christchurch, Newport. Second, Mr. J. Speary, Pontvane Farm, Christchurch.

POLANDS (Silver).—First and Second, J. Hinton, Hinton, near Bath.

BANTAMS (Gold or Silver-laced).—First, R. Crawshay, Cyfarthfa Castle, Merthyr. Second, R. Everett, Gibraltar Cottage, Monmouth.

BANTAMS (Game).—First, E. Colson, Sunny Bridge. Second, F. T. Parker, Rockfield House, Monmouth.

BANTAMS (any other variety).—First, E. Payne, Wharf, Cardiff (Black). Second, E. B. Evans, Bank, Cardiff.

ANY OTHER DISTINCT BREED.—First, R. H. Nicholas, Yewberry Cottage, Malpas. Second, R. Everett, Gibraltar Cottage, Monmouth. **CHICKENS.**—First and Second, R. H. Nicholas.

GUINEA FOWLS.—Prize, Master J. Jones, Cefn Clogell, near Newport.

DUCKS (Aylesbury).—First, E. Payne, Wharf, Cardiff. Second, Sir G. Walker, Castletown, Cardiff.

DUCKS (Rouen).—First, A. Higgins, The Grange, near Lydney. Second, W. Cuff, St. Fagans, Glamorganshire.

GESE.—First, R. Crawshay, Cyfarthfa Castle, Merthyr. Second, W. C. James, Pontnewydd.

TURKEYS.—First, R. Crawshay, Cyfarthfa Castle, Merthyr. Second, W. Crawshay, Pontypridd.

DORKING COCK.—Prize, F. T. Parker, Rockfield House, Monmouth. **COCKEREL.**—Prize, F. T. Parker.

GAME COCK.—Prize, E. G. Jarvis, Itton, near Chepstow. **COCKEREL.**—Prize, E. G. Jarvis.

SPANISH COCK.—R. Crawshay, Cyfarthfa Castle, Merthyr.

Best Pen of FOWLS in the Show.—Prize, F. T. Parker, Rockfield House, Monmouth.

Best Pen of DUCKS in the Show.—Prize, A. Higgins, The Grange, near Lydney.

Best Pen of EXTRA STOCK.—Prize, W. C. James, Pontnewydd, Newport.

Mr. Bailly, Mount Street, Grosvenor Square, was the Judge.

YORK POULTRY EXHIBITION.

VERY great credit is due to the Poultry Committee of the York Exhibition, for their arrangements were carried out in the most judicious manner. The pens used were those of Mr. Turner, of Sheffield; and the temporary building, raised expressly for the accommodation of the poultry, was of a character that permitted the diffusion of daylight throughout. Besides this, as the Exhibition remained open during the evenings, gas was introduced most abundantly along every avenue, similar to the practice at Bingley Hall, Birmingham.

It is very pleasing to note how great has been the improvement at most of our late shows in respect to the general health of the poultry exhibited. Certain it is, that at York only one bird throughout the whole collection bore even the slightest symptom of disease. Only a few years bygone, and numbers of pens could have been readily pointed out at most of our exhibitions as being decidedly ailing. Careful management, combined with improved knowledge of poultry ailments and their remedies, has effected this beneficial change.

The *Grey Dorkings* stood first on the prize list; and but very rarely has a better class throughout been on exhibition. Mr. Samuel Burn, of Whitby, again took precedence with the same pen that obtained like honours last week at Darlington.

The *Spanish* were most of them excellent; and, being rather an unusual variety in the neighbourhood, excited much public attention.

The *Cochins* of all kinds competed for one set of prizes. The first premium fell to decidedly the best pen of White ones, belonging to Mr. Copple, of Prescott, we ever remember seeing. Mr. Tomlinson, of Birmingham, being a good second with his celebrated strain of Buff birds; and Mr. Staley, of Newark, taking a very respectable third position with a pen of well-plumaged Grouse-coloured ones.

The *Game* were mostly unexceptionable. Mr. Charles Holden, of Worksop, managing to head the list, both as to a pen of three, and the Single Game Cock Sweepstakes likewise. The latter bird was certainly one of the most clever Game cocks we can call to remembrance. The other winning birds were necessarily very superior, as this class was one of the best filled in the show-room.

In the *Hamburghs*, the Golden-spangled were first-rate, but the Pencilled birds were inferior.

No class was worse represented than the *Sebright Bantams*. Indeed, this seems to be a general deficiency at shows in the northern counties. Their peculiar elegance of shape and exquisite beauty of feather would certainly cause great admiration, if a good pen were to find their way among amateurs in this neighbourhood. The Black, White, and Game Bantams were, however, a credit to any Meeting; all first-rate, many such as are rarely met with.

White Turkeys took the post of honour even from their darker brethren. There were, however, capital specimens of both Norfolk and American Turkeys.

The *Geese* and *Ducks* were quite equal to those now so frequently seen at our principal shows; the Empden variety taking the precedence, very closely pressed, however, by a truly good pen of "Saddle-backs." The weather during the meeting was excessively piercing; yet there was a good attendance both from York itself, and also many travelling from long distances. Numerous were the expressions of approval that met our ears from visitors well versed in all matters connected with the management of Poultry Exhibitions.

Four Special Prizes of Five Pounds each, in Cups or Plate, the gift of the Poultry Committee, were awarded to the best pen of Dorkings, Spanish, Cochin-China, and Game fowls, in lieu of the First Prizes. The four Cups were taken by the winners of the First Prizes in the respective classes (as appointed).

DORKINGS (any colour).—First, S. Burn, East Terrace, Whitby. Second, P. Barnard, Brigby, Brigg. Third, S. Pickard, Dintcar House, Wakefield. Highly Commended, H. W. B. Berwick, Helmsley; F. Key, Beverley. Commended, H. Baines, Lincroft Lodge, York.

SPANISH.—First, J. Price, Londonderry, Bedale. Second, S. Burn, East Terrace, Whitby. Third, J. Braddock, York.

COCHIN-CHINA.—First, W. Copple, Eccleston, Prescott. Second, H. Tomlinson, Balsall Heath Road, Birmingham. Third, J. Staley, North Collingham, Newark. Highly Commended, G. Gilbert, Claxton, Norwich. Commended, J. Staley, North Collingham, Newark.

GAME.—First, C. Holden, Steetly, Worksop. Second, T. Bottomley, Buttershaw Mills, Bradford. Highly Commended, R. Tate, Driffild; E. Calvert, York; T. Dodds, Ovenden, Halifax; E. Aykroyd, Darlington; M. Hunter, Green Hammerton, York. Commended, J. Burley, Poppleton Gate, York; H. Tate, Cliff-cum-Lund, Howden; J. Price, Londonderry, Bedale; J. Jaques and Robshaw, Knaresbro'.
HAMBURGH (Gold or Silver-pencilled).—First, J. Holland, Sansome Walk, Worcester. Second, J. Falkiner, Hunmanby, Scarborough. Third, M. Cooper, Helmsley. Highly Commended, J. Cooper, Helmsley.

HAMBURGH (Gold or Silver-spangled).—First, M. Cooper, Helmsley.

Second, S. Robson, Pocklington. Third, S. Pickard, Dintear House, Wakefield. Highly Commended, T. Jolly, Warlaby, Northallerton; S. Pickard. Commended, R. Tate, Driffield; S. Blands, Acaster Malbis, York.

ANY FARMYARD CROSS, or other variety not previously classed.—First and Second, R. Tate, Driffield (Malays and Black Hamburgs). Third, S. Smith, Northowram, Halifax (Black Polands). Highly Commended, T. Jolly, Warlaby, Northallerton.

GUINEA FOWL.—First and Second, Mrs. Holtby, Haywold, Huggate. Third withheld.

BANTAMS (Laced).—First, W. H. Chaffer, Hull. Second withheld.

BANTAMS (Black or White).—First, R. Tate, Driffield. Second, S. Pickard, Dintear House, Wakefield. Highly Commended, E. Hutton, Fulneck, Leeds.

BANTAMS (any other colour).—First, W. Hornsey, Monk Bar, York. Second, W. H. Chaffer, 45, Sylvester Street, Hull. Highly Commended, S. Pickard, Dintear House, Wakefield; W. Hornsey.

GAME COCKS.—First, C. Holden, Steetly, Worksop. Second, T. Dodds, Ovenden, Halifax. Third, H. M. Julian, Beverley.

TURKEYS.—First, Mrs. Holtby, Haywold, Huggate. Second, A. Pease, Southend, Darlington. Third, Mrs. Bainbridge, Oulston Hall, Easingwold. Highly Commended, J. Price, Londonderry, Bedale; Mrs. Holtby. Commended, T. Holtby, Tower Place, York.

GEESSE.—First, J. Price, Londonderry, Bedale. Second, Mrs. Mitchell, Low Grange, Market Weighton. Third, T. Kidd, Tadcaster. Highly Commended, J. Price. Commended, A. Pease, Southend, Darlington.

DUCKS (Aylesbury).—First, S. Burn, East Terrace, Whitby. Second and Third, J. Price, Londonderry, Bedale. Highly Commended, A. Pease, Southend, Darlington. Commended, L. Thompson, Sheriff Hutton Park, York.

DUCKS (Rouen or any other).—First, S. Burn, East Terrace, Whitby. Second, S. Pickard, Dintear House, Wakefield. Third, H. W. B. Berwick, Helmsley. Highly Commended, Mrs. Johnson, High Catton, Stamford Bridge; J. Price, Londonderry, Bedale.

EXTRA STOCK.—Prize, M. Cooper, Helmsley (Cockerel). Prize, G. Hutchinson, Prospect House, York (Ptarmigan Pheasant). Prize, J. H. Smith, Skelton Grange, York. Prize, Mrs. Cholmeley, Brandsby Hall, York (Cygnets).

JUDGES.—Ellison, Esq., Allerton House, Knaresborough; and Edward Hewitt, Esq., Eden Cottage, Sparkbrook, Birmingham.

GLASGOW AGRICULTURAL SOCIETY'S WINTER SHOW.—DECEMBER 10TH.

THE Judges were Messrs. William Trotter, South Acomb, Newcastle-on-Tyne; James Crawford, St. Rollox; and Hugh Donald Johnstone. The following is a list of the prizes:—

DORKINGS (Grey).—First, H. Heys, Springfield House, Barrhead. Second, Mrs. F. Blair, Balthayock, Inchmartine. Third, J. Gibson, Woolmet, Dalkeith. *Chickens*.—First, J. Davie, Kirkshaws, Old Monkland. Second, A. Kinloch, jun., Temple, Maryhill. Third, Mrs. F. Blair.

DORKINGS (Silver Grey).—First, Lord Kinnaird, Rossie Priory, Inchture. Second and Third, Mrs. F. Blair, Inchmartine. *Chickens*.—First, Mrs. F. Blair. Second, Miss R. Bell, Woodhouselees, Canonbie. Third, Lord Kinnaird.

DORKINGS (White).—First and Second, J. M'Lachlan, Saucel Coal Dépôt, Paisley. Third, T. D. Findlay, Easterhill, Glasgow. *Chickens*.—First and Third, T. D. Findlay. Second, J. M'Lachlan. *Cock or Cockerel*.—Silver Medal, H. Heys, Springfield House, Barrhead.

COCHIN-CHINA (Coloured).—First and Third, Mrs. F. Blair, Inchmartine. Second, D. Stratton, Midcalder. *Chickens*.—First, Second, and Third, Mrs. F. Blair.

COCHIN-CHINA (White).—First, I. C. Wakefield, Eastwood Park, Thornliebank. Second, Mrs. F. Blair, Inchmartine. Third, A. Paterson, Chapel Street, Airdrie. *Chickens*.—First, A. Paterson. Second, I. C. Wakefield. Third, Mrs. F. Blair.

BRAHMA POOTRA.—First and Second, Mrs. F. Blair, Inchmartine. Third, Miss R. Bell, Woodhouselees, Canonbie. *Chickens*.—First, Second, and Third, Mrs. F. Blair.

HAMBURGS (Golden).—First, J. Young, Castle Glen, Busby. Second, A. Ferguson, Stewarton. Third, A. Allan, Carbars, Wishaw. *Chickens*.—First, Mrs. F. Blair, Inchmartine. Second, I. C. Wakefield, Eastwood Park, Thornliebank. Third, R. Corbett, Barrhead.

HAMBURGS (Silver).—First, H. Heys, Springfield House, Barrhead. Second, W. Gilmour, 26, St. Mungo Street, Glasgow. Third, A. Gilmour, Broom, Stewarton. *Chickens*.—First, I. C. Wakefield, Eastwood Park, Thornliebank. Second, H. Heys. Third, A. Gilmour.

SPANISH.—First, A. Graham, Tambowie, Milngavie. Second, H. Paton, View Villa, Kilmarnock. Third, G. Aitken, Shirva, Kirkintilloch. *Chickens*.—First, I. C. Wakefield, Eastwood Park, Thornliebank. Second, A. Kinloch, jun., Temple, Maryhill. Third, W. Michell, Wishaw. *Cock or Cockerel*.—Silver Medal, J. Miller, Buns Wynd Street, Beith.

POLANDS (Black).—First and Second, J. Davie, Kirkshaws, Old Monkland. *Chickens*.—First and Second, J. Davie. Third, Countess de Flahault, Tullyallan Castle, Kincardine-on-Forth.

POLAND (any other breed).—First, I. C. Wakefield, Eastwood Park, Thornliebank. Second, J. Davie, Kirkshaws, Old Monkland. *Chickens*.—First, J. Davie. Second, Mrs. Swinburne, Elan Shona, Strontian. Third, A. Ferguson, Stewarton.

SCOTCH GREY.—First, W. Gilmour, 26, St. Mungo Street, Glasgow. Second, W. M'Lintock, Lockinch, Pollockshaws. Third, T. King, Burnhouse, Beith. *Chickens*.—First, A. Aikenhead, Murray, East Kilbride. Second, A. Aikenhead, New Farm, East Kilbride. Third, R. Rankin, Busby Mill, Busby.

GAME.—First, R. Corbett, Barrhead. Second, J. Cunningham, West Arthurlie, Barrhead. Third, J. Young, Castle Glen, Busby. *Chickens*.—First, Second, and Third, R. Corbett.

BANTAMS.—First, R. Rankin, Busby Mill, Busby. Second, I. C. Wakefield, Eastwood Park, Thornliebank. Third, J. Dick, Newlands, Baillieston. *Chickens*.—First and Third, Mrs. F. Blair, Inchmartine. Second, R. Corbett, Barrhead.

ANY OTHER BREED.—First, A. Ferguson, Stewarton. Second, A. Paterson, Chapel Street, Airdrie. Third, Mrs. F. Blair, Inchmartine.

ANY AGE AND BREED.—Silver Medal, I. C. Wakefield, Eastwood Park, Thornliebank.

DUCKS (Aylesbury).—First, Lord Kinnaird, Rossie Priory, Inchture. Second, Mrs. F. Blair, Inchmartine. Third, Mrs. Swinburne, Elan Shona, Strontian.

DUCKS (Rouen).—First, Miss R. Bell, Woodhouselees, Canonbie. Second, Mrs. F. Blair, Inchmartine. Third, A. Ferguson, Stewarton.

DUCKS (any other breed).—First, Mrs. F. Blair, Inchmartine. Second, R. Pollock, North Walton, Mearns. Third, Countess de Flahault, Tullyallan Castle, Kincardine-on-Forth.

TURKEYS.—First and Second, Mrs. F. Blair, Inchmartine. Third, Lord Kinnaird, Rossie Priory, Inchture. *Poults*.—First and Third, Mrs. F. Blair. Second, A. M'Farlane, Balmuldy, Bishopbriggs.

GEESSE.—First, H. Heys, Springfield House, Barrhead. Second, Mrs. F. Blair, Inchmartine. Third, Lord Kinnaird, Rossie Priory, Inchture. *Goslings*.—First, Second, and Third, Mrs. F. Blair.

Cock and Five Hens.—Prize, J. Lynass, 12, York Street.

LOW FEES AND SMALL PRIZES, versus HIGH FEES AND LARGE PRIZES.

I HAVE noticed that there are a great number of Poultry Shows where the entry fees are small, and, as a natural consequence, the prizes are small also. However well this may answer for some time that for one open to the whole kingdom the railway companies are the only parties who derive any benefit from them; and, although the majority of exhibitors follow the poultry mania as a hobby, yet all Englishmen like their hobbies to keep themselves.

I find that throughout the present year the railway charges for my own birds for carriage to and from the different shows average within a fraction of 5s. per pen. Now, I will suppose that a successful exhibitor (and all who exhibit hope to be successful), sends to a show four pens, and out of these he has a first and second prize awarded to him; the table which I have drawn up below will show which exhibitions are most worthy of his attention, the small-fee shows or the larger ones. My opinion is, that the happy medium lies between 6s. and 7s. 6d. fees. The Birmingham one with the subscription and entries averages the latter, and for number it is the greatest Show of the year; but, it must be remembered that it occupies a central position, and has acquired a name:—

Fees.	Prizes.	Total.	Fees for	Railway Charge	Total.
s. d.	1st.	2nd.	4 pens.	for 4 pens at 5s.	s.
2 6	20	5	10	20	30
3 0	20	10	12	20	32
4 0	30	10	16	20	36
5 0	40	20	20	20	40
6 0	50	30	24	20	44
7 6	60	40	30	20	50
10 0	100	40	40	20	60

The above is drawn up in accordance with the general run of the prize lists; and I do not see how parties at a distance can be expected to send their poultry, unless the entry fees are 5s. or more, and corresponding prizes.

Those who have really tip-top birds and are of a sanguine temperament will appreciate such a Show as Liverpool, where the small accommodation compels the Committee to adopt a high rate of fees. The prizes they offer are really worth trying for. Then there is always quality, and it takes place at that period of the year when the birds are in magnificent plumage.—ALPHA.

DARLINGTON POULTRY SHOW.—DECEMBER.

THE one just concluded is the seventh meeting of this Society, and it is most gratifying to state it has proved the most successful of any of them.

With the exception of the old Silver-pencilled Hamburgs, the White and Pile Game fowls, and the Sebright Bantams, few exhibitions could boast of a better display, not only the prize birds, but the whole of the classes generally being of the highest character. The fowls had the accommodation of those best of show-pens, Mr. Turner's, of Sheffield; and lest bad weather might possibly take place, the managing Committee had purposely erected a very commodious temporary building very well lighted from the roof; nor did they stay at this point only, for the weather being cold and severe, large open fires were lighted in each avenue, diffusing a great amount of comfort and satisfaction to the specimens. It is these little untiring attentions of Committees that so strongly enlist the favourable opinions of exhibitors to future Shows; and we do not doubt in this instance

it will add most materially to the amount of entries in coming seasons.

In *Spanish* many of the birds were most excellent; but not a few pens lost all hope of winning from the cocks being "lopped" more or less in the comb. It is surprising amateurs are not more careful in selection. The *Chickens* of this variety were really worthy of any meeting.

Although so far north, the *Grey Dorkings*, both old and young, mustered in large numbers, and of first-rate quality. In the *White Dorkings* the entries were limited, but very good. In this variety one of decidedly the best pens, if not actually the very best, was disqualified altogether from containing a *cockerel*, though in the class for adults. Wrongly-entered fowls must always lose; their chances are always overboard.

In *Cochins* Darlington stood very high, it is almost impossible to hope for better—the *Chickens* more especially; but we cannot refrain most favourable mention of the first prize Partridge chickens, although it might appear invidious to select among so many first-rate birds of all varieties of colour.

The Duckwing and Red Game classes were unusually good; indeed, as before said, with the exception of Whites and Piles, the winners had hosts of close competitors to beat off that at most exhibitions would have readily succeeded in taking premiums.

Many of the *Hamburgs* were a credit even to Yorkshire; the perfection of breast-markings in Mr. Adams's old Golden-spangled cock was most praiseworthy.

The *Polands*, though few in numbers, were creditable specimens.

In the class for any variety of *Ducks* were some well-plumaged Mandarins, and a trio of the best-feathered and most familiar Shell Ducks we yet remember seeing. These proved most attractive to sightseers, not only on account of their peculiar beauty, but also for the eccentricity of their habits.

The *Turkeys* and *Geese* strongly suggested the idea of approaching Christmas; they, without a solitary exception, were most noble birds, and did the highest credit to their respective breeders.

The *Pigeons* were a most attractive collection; and throughout the whole, competition of the highest character existed. The arrangements for this interesting portion of the Show were excellent, and visitors seemed quite to appreciate this section; for among them were many amateurs who travelled long distances for this especial purpose.

Mr. Edward Hewitt, of Eden Cottage, Sparkbrook, Birmingham, fulfilled the duty of arbitrator on this occasion.

Before concluding we may state it is a pleasure to see the wonderful improvement of late in the Exhibitions of our northern counties; and certainly, if the Show at Darlington is to be taken as a fair criterion, even the most favoured localities must keep moving to maintain precedence.

CHESTERFIELD AND SCARSDALE POULTRY ASSOCIATION.

Its prize list is now before us, but seems chiefly intended to encourage the Game and *Hamburgh* kinds; for *Dorkings*, *Cochins*, and *Polands* have only one class each into which "any colour" is admitted! There is one variation which is good. In the classes for "Single Game Cocks," the Black and Brown Reds compete in one class, and "any other colour" in a second class. There is also a sweepstakes for Game Bantam Cocks. Not even the owner of a pen is to be allowed to take a fowl from it during the Exhibition, unless by permission of the President or Secretaries. This is a good rule, and is to be strictly enforced. It will prevent many suspicious occurrences.

GAPES IN FOWLS.

You state, in reply to "A. B. C." (Letter Box), that there is no known cure for the gapes. An experiment of my own has been attended with some success; and if others will venture to try it, I should like to hear the result of their operations. My plan is to extract the red worm. My instrument for the purpose is simply this: I put a piece of thinnish wire in a vice, hammer a small portion of it flat, file the edges of the hook smooth, insert this into the windpipe, and you may draw out the worm with it. Great care, of course, is requisite that you do not force the worm down the windpipe, when suffocation might take place. I have lost one chicken in that way; but then those I have operated

upon have been quite young, when, of course, there is much more danger. A crowing cock I would fearlessly take in hand.

Can you or any of your readers describe to me an artificial chicken-mother that has been proved to answer the purpose well?—G. MONTAGUE.

BEESWAX.

THE statement which Mr. Wighton attributes to Dr. Dunbar probably refers to the actual weight of combs, not the wax which they contain, and, therefore, means no more than this: that old combs when empty are heavier than new ones, owing to their being thickened by breeding and the other uses to which they are applied. The actual quantity of wax would, undoubtedly, be much the same in either case; although from its being, as it were, entangled by the impurities with which it becomes so intimately connected, it is impossible to make old combs yield their full proportion.

If Mr. Wighton had been much behind the editorial scenes he would not attach so great importance to a mere newspaper paragraph. There is, however, little to object to in the one quoted by him. The writer simply enunciates aphorisms which are well-known to every schoolboy. Neither the bee nor any other animal can produce or secrete any substance the elements of which are not to be found either in the food it consumes or the materials it collects. There is, also, no doubt that many plants furnish a substance "almost identical with common wax." On the other hand, I have already shown Mr. Wighton that chemical analysis proves vegetable wax to differ essentially from beeswax in the proportion of its elements; whilst the secretion of wax by the bee from saccharine substances has been so clearly and repeatedly demonstrated, that it now takes rank as one of the best-proved and most undoubted of scientific facts.

My only reason for controverting the crude theories advanced by Mr. Wighton (which being, as he says, "impossible to explain," he appears to find it equally impossible to support either by experiments or facts), is the fear that being put forth with the semblance of authority, they might raise unnecessary doubts in the minds of the inexperienced. No practised apiarian is likely to embrace Mr. Wighton's fallacies; and a very small amount of observation will be sufficient to enable the veriest tyro to decide for himself between Mr. Wighton and the great lights of apiarian science, whose views have been imperfectly enunciated by—A. DEVONSHIRE BEE-KEEPER.

P.S.—Should Mr. Wighton be desirous of penetrating my incognito, an inquiry addressed to the Editors of THE COTTAGE GARDENER will readily enable him to do so.

OUR LETTER BOX.

DEVIZES POULTRY SHOW.—The entries for this positively close on Saturday the 24th inst., and the exhibition takes place on Wednesday, January 11th.

FOOD FOR TURKEYS (*Rose*).—Barleymeal and pollard, in equal proportions, with cabbage-leaves and onion-tops chopped small and mixed with them, and made into a stiff paste, should be given to Turkeys every morning and evening, and oats or barley in the middle of the day.

HENS FOR LAYING (*A Constant Reader, Sheffield*).—As you only require eggs, and have a space twenty-four yards long by three yards wide, buy four Brown Cochins, and four Silver-pencilled *Hamburgh* pullets. Sell them all in the autumn and buy fresh pullets, for these are better layers than hens.

RABBITS (*J. V.*).—From nine months to two years old is the best age for a breeding doe. They do not need either barley or oats. Green food, especially chicory, clover, chaff, and bran, are the best diet. In our Vols. XVII. and XVIII. are many papers on Rabbit management.

HYBRID CAGE BIRDS (*Curious*).—I beg to refer "CURIOUS" to the hybrids or mules exhibited at the late Crystal Palace Bird Show, where five hybrids from a cock Goldfinch and hen Bullfinch, were exhibited; as also two hybrids between a Goldfinch and Greenfinch. I have also heard of hybrids produced between a Greenfinch and grey Linnet; and the common Sparrow and mountain Sparrow are said to breed together in confinement. "CURIOUS" might try almost any two of our British Finches probably with success. The birds intended to cross would be best reared by hand from the nest, and together, so as to become quite tame and familiar with each other. Those intended to pair should be kept in the same cage all the year till breeding time arrives; then, by separating them for a few days and putting them together again, they will most likely couple. They should be fed on plain, wholesome food; but just at coupling time a little hempseed might be given. A few pairs of steady Canaries should be in readiness to rear the eggs, as it is very rare for the undomesticated hens to sit and rear their young in cages. Hence the reason the hen Canary is usually used for mule breeding. The cock Sparrow has occasionally, though rarely, bred with the Canary.—B. P. BRENT.

ERRATA IN REPORT OF CRYSTAL PALACE BIRD SHOW.—Page 135, line 30, from bottom, for "bunched-backed," read "hunched-backed." Page 136, second column, line 14, for "Mr. H. Bayman's Wrynecked Cuckoo's Mate or Snake Bird," read "Mr. H. Bayman's Wryneck, Cuckoo's-mate, or Snake Bird." At line 42, for "Serim Finch," read "Serin Finch."

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	DECEMBER 27, 1859.—JANUARY, 2, 1860.	WEATHER NEAR LONDON IN 1859.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
27	Tu	ST. JOHN THE EVANGELIST.	29.424—29.353	44—37	W.	.05	8 af 8	54 af 3	19 7	3	1 11	361
28	W	INNOCENTS.	29.707—29.630	44—28	W.	.02	8 8	55 3	30 8	4	1 41	362
29	Th	Lobelia erinus maxima.	30.047—29.825	43—24	N.W.	—	9 8	56 3	40 9	5	2 10	363
30	F	Linum monogynum.	30.124—30.049	40—39	W.	.01	9 8	57 3	49 10	6	2 39	364
31	S	Maurandya Barclayana.	30.182—30.134	42—40	N.E.	.01	9 8	58 3	58 11	7	3 8	365
1	SUN	1 SUNDAY AFTER CHRISTMAS.	30.404—30.331	43—30	N.E.	.03	9 8	IV	morn.	8	3 37	1
2	M	Primula vulgaris [CIRCUMCISION.]	30.566—30.554	39—29	W.	—	9 8	0 4	10 1	9	4 5	2

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-two years, the average highest and lowest temperatures of these days are 43° and 31.2°, respectively. The greatest heat, 58°, occurred on the 28th, in 1855; and the lowest cold, 4°, on the 2nd, in 1854. During the period 150 days were fine, and on 74 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

Now that we have winterly weather set in with some rigour it is advisable to be cautious in the application of heat, more especially at night. From 45° by night to 50° by day will be sufficient for the conservatory, and 40° for the mixed greenhouse. To give a pleasing variety to the appearance of these houses it is advisable to rearrange the plants occasionally; those going out of flower to be removed, and a fresh supply introduced from the forcing-pit. All plants in these and other departments to be regularly looked over, removing the dead leaves and tying in straggling branches. The surface soil to be stirred a little, and some fresh added. As all compost-heaps are benefited by exposure to frosts, it is advisable to turn over the caked or frozen surface every morning, until the whole is turned over and penetrated by the frost, by which grubs and all such kinds of vermin are destroyed, and the soil considerably ameliorated.

STOVE AND ORCHID-HOUSE.

As it would be improper to attempt to maintain the same degree of heat in any structure, when the external temperature is below the freezing-point; as may be permitted if it were 10° or 15° above freezing, we would advise from 50° by night to 60° by day, for the stove and Orchid-house. As many plants, especially Orchids, suffer from drip at this season, a careful look-out should be kept, and either the cause remedied or the plants removed. The decoration of the hothouse would now depend in a great measure upon Begonias, Euphorbias, Luculias, &c. Such plants should be carefully tied up and placed in the most conspicuous situations, or some of them may be removed to the conservatory so as to prolong their season of blooming.

FORCING-HOUSES.

CUCUMBERS.—No diminution of heat to be allowed after the plants are ridged out and in action.

PEACHES.—Continue the treatment as lately advised for the early houses. The trees in the late houses to receive whatever pruning is necessary, and to be cleansed of every particle of scale, and afterwards washed with a composition of soft soap and sulphur. All bast ties and insect-haunts to be carefully removed.

PINES.—During the continuance of the present severe weather, dry fern, straw, &c., will be necessary, in addition to mats; such coverings will be of more service than maintaining strong fires to keep up the temperature. When a supply of fruit is required throughout the year, it is sometimes necessary, at this season, to subject some of the plants to a high temperature to start them into fruit. A few of such as are most likely to fruit soon, to be put into a pit, or house, by themselves, where a temperature of from 60° to 65° by night, and from 70° to 75° by day, with about 80° of bottom heat, will be the most certain treatment for starting them into fruit. The other plants can then be supplied with a moderate temperature

until the beginning of February; by such treatment a succession of fruit will be prolonged. Do not suffer the linings of dung-beds to decline, keep up, if possible, a temperature of 50° at night, and 60° by day, with a little air at every favourable opportunity.

RASPBERRIES.—When a few early dishes would be considered a treat, if some canes are taken up and planted in any vacant spot in the Peach-house, they will be found to bear fruit abundantly with common care. It is a more certain method of obtaining fruit than by potting them.

VINES.—Increase the temperature slightly when the buds are beginning to swell, or are starting a little. The syringe to be freely used to maintain a liberal supply of atmospheric moisture, with a sufficient interval to allow the stems to become rather dry. The fermenting material in the house to be stirred up occasionally. This fermenting material should, if possible, consist of a large proportion of leaves mixed with the dung, to prevent the steam from the latter discolouring the rafters and sashes; and if the vapour is likely to be too strong, a thin covering of sawdust or old tan will prevent any injurious effects. If the roots are outside the house, and had been covered before the commencement of frost, as advised, some more dung and leaves should be added to keep up a genial heat in the border, the good effects of which will be soon evident in the progress of the Vines inside. When the Grapes are all cut in the late houses, the Vines to be pruned immediately, and the cuts to be covered with white lead.

WILLIAM KEANE.

RAISING TRITOMA UVARIA FROM SEED.

How strange that, after dealing so largely in the article Tritoma for the last year or two, we should all have overlooked the most essential part of the business at the last; but it will be seen, from the different items which I have to add to the Christmas bill, that many more of us besides D. Beaton have been nodding this time.

Seeds of *Tritoma uvaria* have been advertised in THE COTTAGE GARDENER at 1s. the packet, 2s. 6d. a larger packet, and 5s. for the largest sowing of it, and yet, both the Scotch and Yorkshiremen are, and have been, as much off the scent as the rest of us. I thought I was Yorkshire enough to have my eyes open in our own shop at all events, and that I could tell the private mark and market value of every article on our shelves; also, that I could price it according to the styles of the customers, and that I was canny enough not to be taken in in a hard bargain. But seeds of *Tritoma uvaria* were advertised in these columns on November 8th, and no one seems to have been the wiser. There is no schooling, therefore, like experience; and ours goes to show that it is really of little or no practical value to advertise anything once or twice, unless one has something good to give away, or wants a wife, who would be sure to scratch his head as bare as a pole in three weeks. Any other article for the market must be advertised, at least, seven times running, or not at all. There is no figure in enumeration more often referred

to in Scripture than number seven, as if our natures could not well be impressed without seven repetitions of the very same thing—as seven blows, seven bruises, seven pinches, seven warnings, and seven anything else that one can think of. Let me for the seventh time rouse the readers of THE COTTAGE GARDENER anent the *Tritoma*.

If you buy a packet of the seeds at once, pay for it in ready money, sow it the next day, or any day from that day to the last day of February, and treat the seedlings as hereinunder mentioned, you will have them up in bloom, as sure as the Bank of England, by the middle of next September—a fact that was not known in gardening last week. Here, then, is a grand secret for “Mac” of Dundee, for Mr. Ruddock, of York Cemetery, for lords, ladies, and gentlemen, and for their gardeners, friends, and neighbours; and if *Tritoma uvaria* be not seen in every parish in the three kingdoms before next Michaelmas, it must be for want of plants and seeds to supply the enormous demand that is sure and certain to be made for it early in the spring. The plants cannot be one farthing cheaper for some years than they are at the present moment, and the seeds will never be cheaper. It is only losing time and caste, therefore, to wait one moment longer; for now there is not the slightest doubt about the fact that this will be the most, and the most deservedly fashionable plant for some years to come. It will also be the newest pot plant for the exhibitions at Kensington Gore.

What I have been suggesting all along about pots and pot-saucers for it were then facts accomplished, though not known to many. One thousand plants of it from seeds saved in London, as it were, have flowered within the last two or three years; and only ten or twelve plants out of the lot varied lighter in the colour of the flowers than the parent—but as many, or more, of these seedlings had deeper-coloured flowers.

There are three kinds or varieties of *Uvaria*; the best of the three, the freest bloomer, and the most given to suckers, is the one they have at Kew, which is the same as my stock; and my stock came originally from Mr. Niven, of the Botanic Garden, Hull, under the name of *T. hybrida*; but in the “Illustrated Bouquet,” where a splendidly coloured figure of it is given, it is called variety *glaucescens*; and the three forms of it are there described, also a digest of all the species and the best ways to grow them.

I have a letter about them from a practical botanist—a gardener who lives under the weight of having to manage the most celebrated garden in the kingdom for one particular branch; but I must not name the branch, for the letter was a private one, and the branch would tell the tale. He says, “You have said much about *Tritoma uvaria*. I have three varieties of it. The true one makes very few suckers.” And let me say that that is just the reason why the true one is a seeder, and the two that sucker so abundantly do not seed at all. I looked over all the plants of it at Kew, or *glaucescens*, last autumn with Mr. Craig, and I believe we got four or five seeds—the whole crop from hundreds, if not from a thousand spikes of it; while over at Old Brompton, not four miles off, almost every flower on every spike ripened seeds, and these very seeds were advertised in November in THE COTTAGE GARDENER.

My friend of the celebrated branch goes on to say, “The Kew variety, or *glaucescens*, suckers freely; variety *serotina* flowers paler on opening, but continues till the end of November, when the colour becomes much darker and is then splendid. I have also *Tritoma Rooperi*, which blooms with me in August, and *T. Burchellii*, which comes in flower in July; also *T. media* in abundance; but I want *pumila* very much. Of all the rest I can spare you plants for your Experimental Garden.” That is the right sort of bill for Christmas; and, as sure as fate, the family will some day “break,” and breed interlaced and cross breed, and they will have *Cyrtanthus*-like lines of it in ribbon-borders from May to October.

“The true one makes very few suckers,” says my friend of that branch. “The true one has seeded with me freely these three years; and I have grown and flowered above one thousand plants of it from seeds, and they come very true—not more than ten or twelve were lighter than the parent, and some were better,” says Mr. James Marcham, of Earl’s Court Road, Old Brompton, London—the very man who advertised it in THE COTTAGE GARDENER, and who was so good as to put me on the right scent about it, and whom I have advised to advertise once more, as I had plenty of customers for it.

He also very kindly sent me a postscript for “Mac,” of Dundee, and for Mr. Ruddock, of York, about how to get it to flower the first year from seeds. “The seed was sown in a greenhouse in February, and planted out in the open ground in May between rows of Strawberries, and flowered in September, 1858.” And for the information of us all about growing them in pots, Mr. Marcham writes, “I have flowered them in 24-sized pots this year, with from three to four spikes to each plant. Next year I expect to have from ten to twenty spikes of bloom in No. 12-pots. I have one plant in my garden which was but one single stem in 1856; in 1857 it had six spikes; in 1858 it had twenty-six spikes; and this last season it had fifty-seven spikes on.”

Mr. Marcham did not say if he were a florist, a nurseryman, or a private gentleman, who had overstocked his garden with these plants, and wished to sell out to make room for seedlings. But the first thing I did was to send for a shilling packet of his *Tritoma*-seeds, and I shall sow them the moment they reach me. I was not aware that they could be had in bloom the first year from seed; and probably there are not six gardeners among us all who could say that seedlings of *Tritoma* would flower sooner than Tulip seedlings, which sometimes take seven years to bloom; but here we shall have them, like annuals, flowering the same year they are sown. But all will not be so lucky. In a great family like ours some of the members will be sure to have bad luck from the cradle to the grave. Some will be bewitched; and no matter what they take in hand, it will not prosper like that of their neighbours; yet there is a way to help them, too, besides that of setting charms.

This is from a tribe of plants with which I began my career in experimenting early in life, and I can vouch for it that it is just as safe to sow the seeds of all these *Tritomas* the very day they are ripe in September or October as it would be in April or May. That is the nature of all their kindred without one exception as far as we have tried them. Therefore the first thing to ensure an annual and a regular crop of seeds, is to procure some plants of the old true species, which seeds freely, to watch the seeds in the autumn, and when they are ripe to sow them at once in pots or boxes; to place these in a cold frame or under a wall till the frost comes, when they should have the protection of a cold pit; and to be kept all the winter along with cuttings of *Verbenas*, *Calceolarias*, or with any other of the hardiest of bedding stuff; and at the end of March to have the seedlings potted singly, or three or four of them in a larger pot, and to nurse them exactly like seedling blue *Lobelias* till planting-out time in May; then to plant them in rows in the kitchen garden, where the Cauliflower or Broccoli would do, and to select the best-coloured flowers for the flower garden.

Those who are expert at the rearing of seedlings and have the aid of a greenhouse may do as Mr. Marcham has done—sow the seeds now or next February, and place them near the front glass at the warmest end, and, I should say, supply them liberally with water after the leaves are two or three inches high. But dashing young gardeners, and the go-a-head of our old fraternity, will rattle them on in heat sufficiently to ensure a strong root-stock before planting-out time. They will also know how much rain or liquid manure they can bear, and these men

will apply it just to that degree which will save the plants from being drowned and no more, for there can be no doubt about their liking much moisture at all stages of their growth, or about their being naturally marsh plants; and we know that all the water and marsh plants from the Cape of Good Hope, are more hardy than the land plants of the same latitudes, but they do not require the same kind of soil as they grow in at the Cape.

Vallota purpurea grows in sheer boggy peat at the Cape, and is naturally a marshy plant; but our peat is next to poison for it under cultivation. In strong, rich loam, and in large pots it does without saucers of water during the summer months; but in small pots, and in old exhausted soil, it does far better if it is allowed a constant suction from a saucer of water under the pot, and I should think either way would suit these *Tritomas*; but we must keep our eyes and ears open, and learn how Mr. Marsham succeeds with his 12-inch pots. He is now in for it, and he must put us all on the right scent, unless, indeed, we shall buy up all his plants, seeds, and seedlings.

Last autumn I said I had some of my flowers of *Tritoma* under experiment for seeding, but I only ripened two seeds; but that was owing to my kind, *glaucescens*, being not a seeder, which I did not know then. I still think the plan will be more sure than chance seeding, and here it is:—The flowers are disposed on the stalk, or scape, in rows, corkscrew fashion, from top to bottom; and the flowering parts of my spikes were about fifteen inches long. One-half of this length I cut off when the bottom flowers were ready to open—that is, as it were, I stopped a shoot to get more strength in the lower buds, the lower ones being the strongest and the first to open. I then picked out the flower-buds, as I may call them, of every other row all round the stalk, that would give additional strength and room to the rest. When the flowers were ready, I dusted them with their own pollen, which is easily done, as both the male and female parts are longer than the flower—that is, the stamens and pistil are exerted, as the botanists would say; but all the kinds of *Tritoma* have not the stamens thus exerted—they stand inside the tube, or flower, in some kinds. The point, or pistil part, in *uvaria* is as sharp and slender as the point of a cambric needle; it hangs down perpendicularly, and there is a large secretion of honey, which drops or trickles down and drowns the pollen. Then the first thing to do is to shake the stalk sharply every morning, when a shower of honey flies about; and after that to blow against the pistils to clear off the honey from them; and in two hours after that, they are sufficiently dry not to drown the pollen, and so on for weeks, as long as the blooms are fresh. All my blooms seemed at first to take, and the seed-pods to swell, but that was soon over and they shrivelled away. The short of it is, that kind is all but quite barren. A whole teacupful of their honey might be gathered every morning at Kew, if their flowers were charged as mine were; but mine had ten times more water at the roots than theirs, and that may have increased the secretion.

It will be a grand thing if the different kinds will cross. Notwithstanding their being so much alike, the effect of high cultivation is sure to tell on the size of the flowers in the long run; and as there is a *pumila*, or very dwarf kind among them, the chances are that we shall have them of all heights, from a foot to seven feet high. But where am I to look for *pumila*, which is said to be very scarce? I must have it, however, if it should come from the highlands of Cumberland or Northumberland like the true *Cyclamen vernal*, which came to me from those parts.

I shall watch the progress of the seedlings with great interest; but unless something very different from what I anticipate be revealed in their progress, there will be little more to say on the subject till all the species and varieties are collected together, and subjected to the process of cross-breeding by different individuals under different

modes of treatment. If I get them all under my thumb, as I hope to get them this next spring, I shall spare no pains in trying their powers of cross-breeding; but let no one refrain from experimenting on them on that account. There is no secret about crossing flowers now, nor any nicety or difficulty about performing on these *Tritomas*; but if any difficulty present itself to any young beginner in our family, let him or her write to 162, Fleet Street, London, where all difficulties and pleasant dreams are welcome, and receive true explanations, for the use and guidance of all comers.

D. BEATON.

ORCHARD-HOUSES.

I HAVE read with attention the remarks of Mr. Errington in your last number on orchard-house culture; because, owing to his age and experience, all that he says should be attended to. In the case he mentions, the failure must be entirely owing to the imperfect ventilation; for how can a sufficient quantity of air be admitted by ventilators "below the ground level" with an embankment before them?

Your readers may, perhaps, be benefited by a description of a light, cheap structure, in which the culture of fruit trees of all sorts cannot fail.

I have recently built a span-roofed house of the following dimensions, differing from my other houses, in which I have had the most complete success, in being a little higher.

Length, 60 feet; height at sides, 5 feet; height to ridge, 9 feet; width, 14 feet. The roof rests on oak posts 5 inches by 3 inches, 5 feet apart (the usual way of building with brick foundations and sills may be employed). It stands north-east and south-west, so that the sun shines all the early part of the day on the north-east side, and in the afternoon on the south-west side.

The rafters are 20 inches apart; it is glazed with 16 oz. glass, in pieces 20 inches by 20 inches, and has a row of glass 15 inches wide (in pieces 20 inches long placed end to end, without putty where they are joined) on each side under the eave-boards. Under the glass, also, on each side is a ventilating shutter of three-quarter-inch board one foot wide, on hinges, opening downwards. Below this are boards (three-quarter inch) to the ground. The two ends are glazed down to the lower edges of the glass at the sides. The rafters are 3 inches by 1½ inch, and are tied together at the apex of the



roof by a light, flat, iron tie, fixed to every fourth rafter (it is in this form with six screws). Besides these ties, and to prevent

the posts going out, three oaken spurs are fixed to three of the posts on each side. This may seem, in print, a homely structure, for there are no sashes, the roof is fixed; but it is really a light and most cheerful-looking house.

Now as to ventilation. There are no apertures in the roof, for I have long since found my houses perfectly ventilated without them. The shutters are, as it will be seen, 2 feet 9 inches from the ground. In sunny weather the air in the house, from the great quantity of sunlight admitted by the large pieces of glass, becomes soon rarified; and then the comparatively heavy, cool air from without enters in two continuous currents. This, of course, soon becomes warm and light, and ascends to the apex of the roof rapidly through the leaves and branches of the trees, which are placed on, or planted in, each border; for in this description of house the path is two or three feet wide—which may, or may not, be sunk two or three inches according to choice—is in the centre, and the borders for the trees are on each side. It may seem strange that no egress for the heated air should be in the roof, and not quite as it ought to be; but I deal only with the result of much experience, and find that by simply leaving a triangular aperture nine inches deep close under the apex of the roof and over the doorways at each end, that no stagnant air ever exists in my houses. The heated air rushes out at each end rapidly enough almost to turn a small windmill, when the sun shines brightly the leaves of the trees are all in motion, and no scorching takes place. This low side-ventilation is so perfect that in two large houses 70 feet long and 20 feet wide, the only ventilators are in shutters 1 foot wide, on each side, about 2 feet 6 inches from the ground. One of these houses is heated by hot water all the summer for the culture of young Vines and Figs, yet no scorching ever occurs. I last season had one of my

14-foot-wide houses heated with hot water, filled with Peach trees in pots. Forcing was commenced in January, and the Peaches ripened in June and July. They were remarkably fine, and the trees without spot or blemish, yet the only ventilators were the shutters 1 foot wide on each side of the house. I have, therefore, ceased to think roof-ventilation necessary in houses of a moderate size appropriated to fruit culture either heated or not.

The great saving effected in doing away with roof-ventilation by the usual sliding sashes will be apparent, if an estimate for building an orchard-house 14 feet wide is procured from any of the regular hothouse builders. I have seen one which was at the rate of £4 10s. per lineal foot, making a house 100 feet long and 14 feet wide cost £450; while one built as I have described can be well finished for something considerably under £100. I say this advisedly, for I have built one—with my own skill and labourers—of the above dimensions, for £50.

This cheapness of construction is entirely owing to the simple way in which ventilation is provided for. The "houses for the million," invented by Sir J. Paxton, but not yet brought out, are, as described to me, sharply inclined from the ground (without side-walls), like the cheap vineries described in the *Gardeners' Chronicle* last year, invented and recommended by Mr. R. Warner. They are, it seems, ventilated in the roof, and will thus be made more expensive than the house I have above described; besides this, they will not do for orchard-houses, if without sides, but should be called vineries.

I do not think the *rationale* of the culture of orchard-house trees in pots has yet been given, or, perhaps, thought of. I am, therefore, tempted to break into the subject; and I hope to show Mr. Errington that this description of culture, although at first much ridiculed by heavy-headed gardeners, is quite in accordance with garden physiology.

A fruit tree four or five years old planted in—say November, 1859, will, in November, 1860, be found in most cases full of blossom-buds, and its roots a mass of spongioles or feeders. In November, 1861, if undisturbed, it will have fewer blossom-buds, more young shoots, and a great portion of the fibrous roots or spongioles around the root-stem, which last year were so abundant, will be found to have died. The rootlets, or small roots, will be found making their way from the stem of the tree, each rootlet having its fringe of spongioles taking up food farther from home only because they have exhausted the mass of earth round the stem of the newly-planted tree. And so, year after year, it sends out from the extremities of its roots fresh feeders. If the tree is delicate in its habit, like many of our esteemed kinds of fruit trees, the feeders soon get beyond the influence of the sun, take up cold watery sap, and it becomes diseased and unfruitful.

Let me now give another side of this true picture, promising that all I write is from experience, gathered from "year to year," and however dull, still necessary to illustrate my orchard-house culture.

Let us, therefore, again plant a tree four or five years old in November, 1859; and, instead of allowing it to remain undisturbed, take it up with all its fibres in November, 1860, and replant it with a small quantity of fresh compost. In November, 1861, let us again take it up. As far as my experience has yet gone, a portion of the spongioles produced in 1860 will be found decayed, but a fresh crop induced by the removal, and the fresh compost, will have sprung forth; so that the roots of the tree are still a mass of fibres or spongioles, and its branches with short, annual shoots full of blossom-buds, and so from "year to year," if the tree be removed annually, the roots will always be young, near home, and easily fed.

The fruit garden may be thus completely under control. If small fruit trees are wanted, remove them annually. If larger, but still very fruitful trees are required, remove them biennially. If large trees are wished for, to be kept within bounds by the pruning-knife only, remove not at all, neither root-prune, but allow your trees to grow vigorously; and if in a highly favourable soil and climate they will, in the course of years, bear large quantities of fruit.

We now come to trees in pots. I have just examined one of my trees in a 13-inch pot, in which it has been without shifting seven years. It was top dressed (as it has been annually) in October, 1858, by taking out the earth about half way down the pot from the surface, and replacing it with fresh compost, ramming it down with great firmness. The compost just removed seems to be quite exhausted, for every part of it is permeated with small fibrous roots, the greater portion of which seem to be dead or dying; so I now take it out with its mass of spongioles

which have done their work, and replace it with some fresh compost, leaving a circular mass of rootlets all round the root-stem* of the tree untouched. These rootlets (if the tree is top dressed in October) will immediately commence to put forth feeders; so that in October, 1860, the compost will be again found to be thoroughly exhausted. It will thus, I trust, be seen that the spongioles or principal feeders near the root-stems are but temporary in trees planted in the open ground; but may be made annual, to a certain extent, by the annual removal of the tree.

By cultivating the tree in a pot you *force* them to be annual; and the tree thus being supplied annually with fresh feeders and fresh food becomes healthy, fruitful, and vigorous. It has not to ramble for its food, and, therefore, may be likened in its comfortable state to a plump Devon ox; while a fruit tree uncared for is something like a wild buffalo in a barren country.

The *vignerons* in some parts of the south of Europe seem to have for a long time known that the fibrous roots of the Vine are annual, for they take away the earth from their Vine stocks in winter, with all the exhausted spongioles of the preceding season, let it lie in a ridge between the rows till spring, and then replace it with some manure. The root-stem promptly puts forth its feeders, and the Grapes are thus brought to high perfection. I remember perfectly well seeing the operation of taking away the soil from the Vines, and, not knowing the "reason why," feeling much surprise at what appeared to me so barbarous a custom.

To return to orchard-house trees. There is nothing in gardening to be compared to their culture when the *rationale* of it is fully understood. Not only is there an annual crop of feeding-roots from above, but from below also. I have before me a stout tree seven years old taken from its pot, and find three or four large roots coiled round the bottom part of the ball of earth and fibrous roots. From these annually are put forth numerous spongioles, which make their way through the holes at the bottom of the pot. If left undisturbed some of these become roots of considerable size, and by making their way too deeply into the border draw up too much food, giving such vigorous growth as to make the tree unfruitful. I now, therefore, have the trees lifted twice in June, and twice in July, the first and the last week in each month. This prevents the roots going deeply into the border, and induces a host of spongioles to push forth, spreading themselves under the pot, and on the surface of the border. If orchard-house trees are planted in the borders instead of being kept in pots, the annual removal and giving fresh compost to the roots then necessary, are what will be at once apparent—equivalent to the annual top dressing given to potted trees.

I fear this article will be thought too long and tedious; but I cannot help adding that with orchard-houses, either lean-to or span-roofed, properly ventilated at the sides, ventilation freely given, and regular syringing, no failure can take place. All kinds of fruits can be cultivated in them; and when one sees, as I often have, the fine crops of Pears, Plums, Peaches, &c., grown on well-fed little trees, no surprise will be felt at the enormous extent this kind of culture has now arrived at. One of my first orchard-house trees, a *Pitmaston Orange Nectarine*, is now twelve years old; it has always remained in the same 13-inch pot without being shifted, and is sturdy, healthy, and more full of blossom-buds than ever.

Although this article is, I fear, too long, it may not be amiss to give a short summary of facts gathered from my experience.

1. That fruit trees of all kinds can be cultivated in structures of glass, either in or out of pots, by annually feeding their roots.
2. That fixed roofs, either lean-to or span-roofed, for orchard-houses or vineries, are far cheaper than sliding sashes. That the most economical distance for the rafters in such roofs is 20 inches apart; the glass 20 inches by 20 inches.† That rafters for lean-to vineries and houses for Peach-trellises, 16 feet wide, and for span-roofed houses, 20 feet wide, may be 4½ inches by 1½ inch. That those for the former, 12 feet to 14 feet wide, and for the latter, 14 feet to 16 feet wide, may be 3 inches by 1½ inch. That these economical houses with fixed roofs are quite as eligible for fruit growing, or even for plant growing, as those more expensively built.
3. That ventilation can be made perfect without being given in the roof by expensive sliding sashes and heavy principal rafters. That the only method of complete ventilation is from below, the

* Root-stem, that part of the tree whence the roots proceed.

† There is no breakage from frost with these large pieces of glass. They are so elastic as to give way when the water freezes in the laps.

openings commencing at two feet from the ground. That the old method of giving air by letting down the roof-sashes to allow the hot air to escape without letting in cool air from below, was inefficient. That the sashes, or shutters, if on hinges, should open downwards so as to offer no obstruction to the descending heavy current of cool air. If they are made to open upwards so as to be suspended over the openings, they check the rapidity of the down current. To keep a shower of rain from a border, you would place a shutter sloped so as to prevent the water falling on to it: in like manner a sloping shutter *above* the ventilating apertures will prevent the cool outward air from *falling* into the house.

4. That these light inexpensive houses may be built for about one-third or one-fourth the rest of the heavy-roofed houses generally built by the regular hothouse builders; and that by using iron for posts, and having the sides and ends all glazed, they may be made equally, or more, neat and agreeable to be looked at.

THOS. RIVERS.

P.S.—I have to-day (December 21), received a letter from an American friend, which, bearing as it does on annual root-pruning, seems of much interest. He was last year deputed, by the United States Government, to travel in Europe to look into the details of Vine culture. The following extract alludes to the subject:—"I have your letter on a subject which interested me greatly last winter while in Zante and Cephalonia, where I found they not only took away the earth from the Vines, from nine to twelve inches in depth, but also cut off all the roots within six inches of the surface close to the stem. These stumps of roots will, of course, throw out plenty of feeders into the earth, which is drawn around them again after being fertilised by exposure to the atmosphere, and by the usual quantum of stable manure spread over and mixed with it. Now, if the practice of the Greeks with the Zante Currant is in accordance with sound physiological principles, I can save at least 500 dollars an acre in the formation of my vineyard, by dispensing with the deep rich soil, have depth only for drainage, and put my manure annually near the surface, to feed the spongioles formed annually." It will, therefore, be seen from this extract, that what has been considered here a new doctrine and practice—viz., that of annually taking away, the surface roots of orchard-house trees in pots, and giving them fresh food, a practice the result of pure accident, is very ancient, and has, probably, been followed by the Greek *vignerons* from time immemorial.

CULTURE OF THE VINE IN POTS.

Not having a parlour to sit in quietly, but being among two or three lively bairns with their pranks, and what not, and not knowing whether it would be of any service to any one or not, I have, until now, been afraid to make the attempt of writing to you; but I will leave you to judge whether what I write is worth printing or not.

In March, 1856, I put in the eyes of Vines for pot culture in the usual way. I took great care of them that summer, and repeatedly shifted them until I had them into twelve-sized pots, and there they remained all the summer; and when they were well ripened in the wood, I packed them one on another up to a wall in a north aspect, and lapped the pots with straw to keep the frost off their roots.

In January, 1858, I repotted them into six-sized pots, without disturbing the roots, employing a compost of rich soil, manure, and very sharp sand, with plenty of good drainage.

In May following they had three, four, five, and six bunches of nice Grapes on each Vine. They ripened their wood well, and then were potted again on the 24th of December, 1858; and on Easter Monday last the Grapes were close on being ripe. The first bunch was cut on that day. On fifteen Vines there were nearly 140 bunches.

As soon as they were all cut and the wood properly ripe, I took the lights off them and gave them eight weeks' rest.

They are in a Dutch pit at one end, where Cucumbers and scores of different sorts of stove plants are growing; and in August last I started them for a second crop; and now I have a second crop of very nice Grapes, two, three, and four bunches on a Vine.

The pit they are growing in is somewhere near thirty-six feet long and eight feet wide, and they occupy four lights at one end; and in the rest are *Passiflora quadrangularis*, Cucumbers, and stove plants, and I allow the heat to work from 60° to 80°.

Many of your readers will be ready to say, What will he do

next year for his crops? I have fresh Vines to take their places this Christmas, when I cast these on one side. They are easily raised from eyes in the way THE COTTAGE GARDENER tells and explains very often.—JOHN CORNWELL, *Gardener, West Cliff, Preston.*

THE PLANTING SEASON FOR FRUIT TREES.

AUTUMN I consider the best time for planting fruit trees, although any period is eligible from October to the end of March. People should take into full consideration the conditions requisite to ensure success. Before proceeding in detail I will just run over them. The very first thing is a proper soil; the next, scarcely secondary, a due regard to the management of the subsoil, and, by consequence, a proper consideration of the levels—in other words, the relation roots bear to the surface of the subsoil. As to soils I have little special to recommend: what is termed a good sound loam is in the main a match for any hardy fruit we possess. We have all heard of the ill effects of bad subsoils, as also bad soils; and what I seek on this occasion is to direct the attention of the fruit-tree planter to the "breakers a-head." Some people will advise that deep holes—"God save the mark"—must be dug in the globe itself, I suppose as pots to hold water. But before people dig holes they should well consider what the hole is for—it should have a meaning. Suppose a case in which the surface soil was about a foot; and that, say they, is too little to establish a permanent fruit tree in. Well, below it the subsoil is ill-natured, coarse, rugged, ungenial—perhaps wet, and what the practical world terms sour. Only fancy a hole dug in such a spot, and the roots of the unhappy tree imbedded in this unfeeling prison. The fact is, that in many such cases the tree is in an earthen or clayey pot, with no hole in the bottom or sides. Then, forsooth, good folks write for advice, saying that the tree had excellent soil provided and much ceremony made over it, yet, strange to say, it would not thrive.

In all planting, of whatever kind, it is nonsense to descend into a retentive subsoil; and what people dare not perform below a certain level they should do upwards, for there is plenty of room overhead; so that, if there are only nine inches of true soil before we get into a retentive pot and we want half a yard, it is evident that we must raise the ground level nine inches. In this there is no harm whatever, so long as the compost is sound; for in proportion as we go above the ground level, so should the soil in like proportion be more adhesive and a larger volume. With regard to subsoils, the best way is to bid them defiance as to the descent of the roots by adopting impervious bottoms at the desired level.

About platform-planting abundant advice will be found in back numbers of THE COTTAGE GARDENER. But then many soils require thorough drainage; for even platforms and higher levels are not a match for some soils. Wherever water is known to accumulate occasionally, there drainage is the first step. Every one cannot plant with the extreme care of the regular gardener, with his prime loams and compost-heaps; but there are certain economic shifts which may be adopted, many of them a match for the gardener's fancy trees. For instance: in many a fresh enclosed plot there is plenty of turf. Now this, whether it is first-rate loam or no, tumbled into the holes, will in most such cases grow fruit trees well. Or put a case in an old kitchen garden where there are old stations from which some tree has been removed. We all know that trees do not like the exhausted soil of a hard-worn predecessor; but how easy it is to exchange this for soil which has been under vegetable culture.

The period of planting is worthy of consideration. Some prefer spring, some the autumn. I give my vote in favour of the latter.

A judicious choice of kinds is, of course, of high importance. Our catalogues and the country possess such a multitude of varieties, that the utmost caution is requisite. People should well consider their object before selection. And again climate must receive full consideration; and it is well to look over the district and take notes of both those good kinds which have succeeded and those which have failed. Common orchard fruits intended to make trees must be well distinguished from those intended for the kitchen garden. To plant a huge growing kind in the latter is to provide for certain failure. Huge trees in the garden are now entirely repudiated by all persons of sound views; and to reduce them to dwarfs would lead to such a snubbing system that they would produce little but coarse shoots.

After selecting proper kinds, the next consideration is planting them. For trees on a dwarfing system, all downward roots

should be pruned away, and all wounded roots receive a fresh and clean cut. The roots should then be spread equally out, and covered with a little richer compost, to facilitate a quick root action the first season. This is of much importance as gaining time. It will be generally found, that if young trees are somewhat excited the first year or two, and thus forced into size and then received a more moderate handling through getting into a plainer medium, fruiting habits will be speedily induced. So that when the volume of soil is a plain loam, or any plain soil, and coaxing material of a more forcing character is placed at first in contact with the roots, these matters will be accomplished.

It remains now to offer remarks on a subsequent process connected with fruit-tree planting—that is, mulching. There has been some difference of opinion about the propriety of this practice. Those reasoning from theory, doubtful; but practical men in general attached to the practice.

The shutting out of the returning warmth of spring has been with the former party the doubtful point. But let it be remembered, that in autumn-planting it is well to enclose and protect the remaining warmth of summer; and in the return of spring, if we lose by the slower admission of returning warmth, we gain in avoiding those vicissitudes of dryness which so often prejudice newly-planted trees. But if any one doubts this argument, how easy would it be to pay a man a shilling to simply fork the mulching aside during the month of April, running into May; restoring it by the same fork as soon as the ground got warmed, and drought apprehended. I speak now of fruit trees planted according to the suggestions here offered. If people will make holes nearly a yard deep into ungenial subsoils, and plant their trees in "the good old way," burying their roots and then stamping on them with all their might, why I will say little about mulching. But ordinary orchard-standards being of coarse rude habit, will, in general, do almost at any time, as compared with a fancy espalier.

Whilst talking about orchard trees, let me not forget to remind our friends of staking immediately trees liable to the winds. Wind-waving is a great impediment of that early action of the root-fibres so very desirable.

B. ERRINGTON.

MANAGEMENT OF ORCHARD-HOUSES.

WILL some of your readers say what is the best distance from the glass to train Vine-canecan in an orchard-house?—[Nine inches.—Eds.]

I have read Mr. Errington's remarks on orchard-houses. In the first place, I think the gentleman was wrong in purchasing plants for an orchard-house which had been prepared for forcing. Then, as to ventilation at the apex being fatal, I do not agree with Mr. Errington's remarks, having corresponded with Mr. Rivers on that subject, who says, "I have never yet found any particular necessity for ridge-ventilation; but at the sides and ends you cannot have too much."

Mr. Rivers says, "*on ventilation success depends.*" I think it matters not how careful and particular you are in preparing your soils, if you do not ventilate. He does not say the height of his house, and at what distance his trees are from the glass.

If parties will occasionally give us their experience with orchard-houses, I am sure it will be appreciated, and produce much useful information. Consult Rivers's 6th edition, as well as a thermometer, and oblige—NOTTINGHAM.

[See what Mr. Rivers says to-day in his able communication.—Eds.]

ATMOSPHERIC MOISTURE IN GLASS-HOUSES.

SOME subscribers have wished for a few more definite directions on this subject as a supplement to the article on heating, &c., a small greenhouse. I wish the matter was in abler hands; but I will try and do my best, and leave other friends to supplement my deficiencies.

On this subject we are apt to fall into one of two errors—the opposites of each other, and either have the atmosphere of our houses too dry or too moist. The first error was the one mainly committed in olden times, when heat was more thought of than securing the necessary amount of atmospheric moisture; or when running pots of water along a heated flue, and thus steaming the house with vapour at a high temperature was thought to be quite sufficient, though the most of that quickly found its way out of the house through every lap, opening, and cranny—part of it only being condensed against the glass and falling in the

shape of drip, if it too did not escape by the laps. The steam thus raised was often too hot to be genial, and often injurious to the flue from whence it came. The best mode is by moist floors, stages, and evaporating-pans on the source of heat, to present the air with the means of being supplied with moist vapour in proportion to the temperature.

All plants when young, and in a healthy, active, growing state, like the atmospheric moisture to be proportionate to the temperature. Thus tropical plants require more than those from more temperate latitudes or loftier elevations. Thus, also, plants of a succulent nature need more than those of a woody nature—as in winter and spring it might be necessary to sprinkle shelves for Cinerarias, Calceolarias, and even free-growing Geraniums, when it might be necessary to dry the air a little for Heaths, Epacrises, and hard-wooded plants. An exception here may be made for true succulents, such as Cacti, Aloes, Haworthias, Mesembryanthemums, &c., which, if grown in summer and not kept in a high temperature in winter, will need very little moisture in the soil or in the air, as they have laid up a sufficient stock to last until the bright days come round. If even they, however, are exposed to a high temperature, then the atmosphere must be fairly supplied with moisture, in order that their stems may absorb as well as perspire. Thus it will be apparent, after making these allowances, that less atmospheric moisture will be necessary in a greenhouse at from 45° to 50° than in a vinery in March ranging from 65° to 75°.

The power of air to contain moisture in the shape of insensible vapour just increases with its temperature. That power is doubled between 44° and 66°, trebled at 80°, and quadrupled at 90°, and so on. Free unconfined air, at a temperature of 50°, will generally contain about one-fiftieth part of its volume of vapour; and, as the specific gravity of vapour to air is as 10 to 15, the vapour will constitute one-seventy-fifth part of its weight. The air at 100°, and with access to dampish surfaces, will contain one-fourteenth of its volume in vapour, and one-twenty-one part in weight. The higher the temperature, therefore—provided the air has access to damp surfaces—the greater will be the quantity of vapour suspended in it, and the lighter will a column of air be; because moist air is so much lighter than dry air, and from the diminished pressure the column of mercury in the barometer will be lower. Thus in the open air in summer the debilitating effects of continued dry weather are so far counteracted by the amount of invisible vapour in the air during the day, and the refreshings of heavy dews during the night; a clear sky and a sinking of from 5° to 10° in the shade being sufficient to enable the fine points of the leaves of plants to condense the moisture in the air near them. If the air were very dry and heavy, as it often is in our spring months, then a greater proportionate fall of the thermometer would be necessary before what little vapour that was in it could be converted into pearly dewdrops.

When a gardener, therefore, speaks of an atmosphere in one of his houses being nearly saturated with vapour, he means that there is so much vapour that a few degrees less temperature, say from 5° to 7°, would enable the plants to condense it in the form of dew for their own benefit. When a philosopher speaks of the air being so little or so much above the dew-point, he means much the same thing—namely, the difference in the degree of heat between a thermometer with dry cotton muslin wrapped round its bulb, and another thermometer with a piece of similar muslin wrapped round its bulb, but kept constantly wet by means of a syphon of woollen or silk thread connected with a bottle of water. The cold produced by evaporation will form what is called the dew-point; and the difference between the two thermometers will give an idea of how much or how little vapour there is in the atmosphere. In a close, muggy day or night in summer or autumn there will be little difference between the two thermometers. In bright, sunny, dry, frosty days in March, the difference is often astonishing even in the open air. Hence early-growing and early-blooming plants suffer so much from being alternately excited, and scorched, and nipped. Thus, too, plants against walls are more liable to suffer than those in the open ground: the sun beating against the wall not only excites the branches before the roots, but the dry heated air shrivels up and parches the early blossoms. Hence the importance of shades and glass in front of such walls, where heat and dryness can be moderated by air and moisture during the day.

To ascertain the quantity of vapour in the air various instruments called hygrometers have been invented; but it is not our purpose to allude to them, the principle in all is the same. A body is chosen that expands and contracts by dryness and

moisture—such as a hair, a piece of catgut, a piece of cord, a piece of whalebone, or a piece of wood. An index is fixed to show the slightest variation. The reading is not in all cases the same; but I believe that in most of them 0 is taken as the extreme possible dryness, and 100 as the extreme possible moistness. An attendant on hothouses soon knows by his bodily sensations the amount of vapour in any one house. Before that a couple of thermometers will furnish a good index; and so will a piece of sea-weed suspended in the shade. I was first led to think on the subject by noticing that a dry bunch of Grapes with perfect blooms, when taken out of a dry vinery and carried into another, just swelling, and having a nice moist heat, was very quickly covered with moisture. Every berry, from its comparative coldness, condensed the vapour near it.

But why should we bother ourselves with our plants so much in houses as respects atmospheric moisture, even when growing, and we wish them to grow vigorously, when they need no such attention in their natural habitats; and if they did, it would be impossible to give it to them? First, because the aim of all culture, and especially under such artificial contrivances as glass houses, is not merely to imitate but to excel Nature: this is the aim of the gardener, and it has not been without its results. Secondly, though we cannot increase or decrease to any amount the quantity of vapour in the general atmosphere, yet, as has already been seen, the amount of vapour will in general be so proportionate to the temperature as not to need our aid; whilst in the confined air of our houses, not only is the amount of vapour more under our control, but its sufficiency as to quantity depends on our care. If, for instance, we go to the home of the Pine Apple, we find that so moist is the high temperature there, that the sinking a few degrees at night is sufficient to precipitate that moisture in a heavy refreshing dew. How should we succeed if the plants were kept by us in as high temperature and at 0, or zero-point, as respects vapour, and especially when growing and swelling? We will suppose the Vine, when fairly at home, luxuriating in a temperature of from 70° to 85° during the day, and the sky clear and unclouded, the sky continuing clear at night, the dew-point would be reached by the time the temperature had fallen from 5° to 10°, and there would be a plentiful deposition of dew. Were we to take the best lessons of Nature as a guide, that would be something like our practice. But supposing that our anxiety was only to heat—and we were confirmed in this by finding that the less moisture we permitted or caused the less heat we needed—to realise a certain rise of temperature, and that therefore we kept stages, and shelves, and floors dry, should we then be giving the plants such advantages as they obtained in their native homes and with the whole general atmosphere to absorb from? Need we wonder that, under such circumstances, we should find on examining our two thermometers that there was more than 20° between them? Need we be astonished that, if instead of being guided by Nature in the case of the Vine, we kept up the same temperature of 70° to 75° at night as well as by day, we dried our air to zero-point and scorched the tender points and edges of our leaves? Had we presented vapour during the day in proportion to the heat and sunlight, and allowed the heat from 80° or more at noon to fall to 60° at midnight, the Vines would have been in as favourable a position as those of the vale of Eschol enjoyed.

Houses thus will require moisture to be raised in vapour just in proportion to the temperature maintained in them; and that, again, should be regulated by the state of the weather, proportioning the highest temperature and the greatest amount of vapour to the greatest amount of sunshine. Thus in the case of bedding plants and greenhouse plants in winter and early spring, extra heat will be frequently required to dry up extra damp instead of securing more vapour. In greenhouses in general, in winter and early spring, the moisture supplied from pathways and soil in pots will be sufficient. But in severe and continued frosts the stages would require to be sprinkled, and evaporating-vessels placed over the heating medium to counteract the cold, dry air without, and to neutralise its influence as it finds an entrance. In all cases of early forcing and growing tropical plants this is still more necessary. The very heating the house dries the air, if nothing is done to prevent it. If metal pipes are used, little can be absorbed by them; if flues are used, much moisture will be absorbed.

I have already stated that the capacity of air for moisture is in proportion to its temperature. The higher the temperature therefore, not only will the air be more moist, if moisture can be got, but it will be more buoyant and light; and, there-

fore, rise and escape at every opening, to be replaced by cooler air, and air much drier than that expelled. The glass may be considered as of a medium temperature between the outside and inside temperatures; and the greater the difference the better will it act as a condenser of all the vapour in the warm air that comes next it, and the moisture will either trickle through the laps and escape, or fall in the house in drops. It has been computed that each square foot of glass will thus cool 1½ cubic foot of air as many degrees per minute as the general temperature of the inner air exceeds that of the outer air. Thus, if the inside air were 60°, and the outside air 24°, there would be a cooling of 36° every minute. Even then on the supposition that the house was pretty closely glazed, what from the escape of heated moist air through crannies and openings, and its gradual drying from condensation against the glass, were there no openings for fresh air, the atmosphere would in time become too kiln-dried to leave any moisture for the leaves to absorb. When we consider that even in dry and frosty weather it is necessary to change the air a little by small openings, and consider how cold and dry the outside air is, then it will be more evident that the air in the house should be well saturated with vapour, that the cold, dry air passing through it at the top of the house may be moistened before it reaches the plants.

So much for the use of atmospheric moisture in the case of plants growing vigorously, or fruits swelling freely. The error in using it has arisen from continuing it too long, by which wood has been rendered soft and spongy instead of hard and firm; and fruits have been more distinguished for being watery than sugary and well flavoured. Growth requires moisture; maturation and flavour need comparative dryness. Besides, in the warm months of summer and autumn, as we need but little artificial heat, so we need little artificial vapour, unless in the case of young growing plants.

Another error is using means for promoting vapour in unison with a similar temperature in cloudy weather and in fine, by night and by day. It is most wanted in bright weather, that is cold and frosty. It is less necessary in dull, warm days, because the difference between the external and internal temperatures would be less; but a little would be advisable so as to permit air-giving. At night the temperature should always be allowed naturally to drop; and that, of course, will render the same amount of vapour unnecessary, unless the nights are very cold. When night and day, in sunshine and in cloud, plants are always in a high, moist temperature, they insensibly lose the power of perspiring freely, and become unhealthy. I often imagine that warts, puckers, and mildews on leaves are greatly owing to defective perspiration thus produced; want of due ventilation and the lessened vital energies occasioned by keeping the plants always in a high temperature. Our good old gardeners were particular in keeping up their night temperature, but they counteracted the natural effects by keeping a comparatively low temperature during the day, be it cloudy or sunshine. We believe it to be most economical and best every way to present the stimulus of heat to our plants in connection with light and sunshine and moisture in the atmosphere according to their circumstances; but, then, we should like to treat them as any other organised existence, and give them rest at night, by lowering the temperature then just so much as to give no check, because extra heat then will merely expand and do nothing in the way of assimilating. Here, for instance, is a Cucumber-house heated by hot water, the sun shines clearly in January; we let the heat rise to 75° and 80°, but secure moisture by evaporation; give a little air—a very little more—if the house rise 5° more, and as soon as the sun declined in power we would reduce and remove the air, shutting up what sun heat we could, more especially if not higher than the above; and by sprinkling walls, &c., we could give that heated air as much vapour as it needed. We should be perfectly satisfied if that house fell to 60° at night, or were even a few degrees lower before morning. The throwing more water about the pipes, &c., during the evening would most likely do more harm than good; it would most likely force the leaves to absorb instead of letting them alone to perspire. If such a house could have the glass covered, and so far prevent radiation of heat at night, then we would be more particular in not using means for creating much vapour at night, as there would be little lost by condensation, owing to the outside of the glass being kept warm. If amateurs, who generally can manage such matters better than gardeners, can get not only their pits and frames, but their small houses covered at night by a nonconductor of heat, then they will not only secure a great economy in fuel, but will probably

beat the regular gardeners, because they will have less occasion to trouble themselves about this atmospheric-moisture question so far as the nights are concerned. They would make a step farther in advance, by using double roofs of clear glass for plants requiring high, moist temperature. The air contained between the glass roofs would lessen the radiation of heat, and, consequently, prevent the escape of vapour by condensation.

R. FISH.

WELLINGTONIA GIGANTEA, AZALEA INDICA, AND OSAGE ORANGE.

THERE is a fine specimen of *Wellingtonia gigantea* at Fairlawn, the seat of — Ridgway, Esq. It was planted in May, 1856, the tree being then ten inches high; and in October last was nine feet eight inches in height, and so densely foliated that no part of the stem was visible for more than five feet high, the plant forming a perfect cone. The bole of the tree also assumes that sturdy character at the bottom which is so common with small plants; the circumference at the collar being twenty-two inches. The situation it is placed in is quite exposed, being in the park with a railing round it.

In the shrubbery near to it were several fine specimens of shrubs and Conifers in excellent health; not the least remarkable being some fine plants of *Azalea Indica*, densely clothed with foliage of the deepest green, and giving promise of abundance of flowers. Mr. Ross, the gardener, told me that when any plant they had in the plant-houses became sickly or unsightly in any way it was turned out, and invariably recovered itself and looked well. That much of this success is due to the soil and situation there cannot be a question. The natural soil seemed to be a light-coloured hazel mould with a gravelly bottom; but some excellent peat had been added to plant the more valuable plants in, and everything capable of enduring the winter had been tried. The situation is somewhat elevated; but there is higher ground to the north and west of it.

Mr. Ross says that in a general way they have less frost than is felt in other places in the immediate neighbourhood; and as a proof of the latter opinion it is only necessary to look to the many hard-wooded plants of generally esteemed tender habits living through the winter without any protection—not the least remarkable among them being fine hedges of the *Osage Orange*, which, though only planted three years, looked formidable and good, and presented an interesting appearance. Fairlawn is a few miles from Sevenoaks, the surrounding country being famous for hardy fruits.—J. ROBSON.

THE SCIENCE OF GARDENING.

(Continued from page 112.)

ALTHOUGH the sap increases in specific gravity, and consequently obtains an accession of solid matter during its progress up the stem, yet the matter thus obtained is not of paramount importance, nor absolutely controlling the subsequent changes to be effected; for in such case the *Green Gage* would be altered by its *Plum* stock, and the *Nonpareil* by its *Crab* stem. So far from this being the case, the old gardener's maxim—"The graft overruleth the stock quite," is consonant with truth, though it is to be taken with some reservation. The graft prevails and retains its qualities, yet the stock has the power of influencing its productiveness as well as the quality of the fruit. Thus, a tree having an expansive foliage and robust growth, indicative of large sap vessels and vigorous circulation, should never be grafted upon a stock oppositely characterised, for the supply of sap will not be sufficient: illustrations are afforded by the *Codlin* never succeeding so well on a *Crab*, nor a *Bigarreau* on a wild *Cherry*, as they do on freer-growing stocks. Indeed, we have no doubt that every tree and shrub succeeds best, is most productive, and most free from disease, if it be supplied with sap from roots and through a stem of its own peculiar kind. This is evident to common sense; nor would any scion be grafted upon a stock of another species or variety, if it were not that such stocks are most easily obtainable, or for producing some alteration in the habit of the plant, or to fit it for some particular soil.

For example: our choicest *Cherries* are grafted or budded upon the wild *Cherry* only because of its being easily obtained; and every one must have noticed the frequently occurring consequence, an enlargement, appearing like a wen, encircling the tree

just above where the graft and the stock joined—the growth of the former having far outstripped that of the latter.

The results from grafting upon stocks differing from the scions in their ratio of growth have thus been illustrated by M. Turpin:

FIG. 1.



Fig. 1. a Stem of a Black-heart Cherry, of soft texture and free growth.
b The stock, being of the Bird Cherry, hard-wooded, and slow in growth.
c The scar at the point of junction, the swelling occasioned by the sap being checked there in its descent.

If a tree could be nourished from its own roots—from organs assigned by its Creator as those best suited to supply the most appropriate quantity and quality of sap, there can be no doubt that it would be productive of benefit in a soil and climate natural to it; and this desideratum seems to be secured by the plan suggested by M. Aibret. In the instances of Apples and Pears—and we see no reason forbidding its adoption to any other grafted tree—he recommends the grafts always to be inserted close to the surface of the ground, or they might be even rather below the surface, by scooping out the earth around the stems of the stocks. When planted out, the lowest extremity of the graft should be about four inches below the surface. After two or three years, at the close of June, the soil should be removed, and just above the junction of the graft and stock, with a gouge, one-fourth of the bark removed by four cuts on opposite sides of the stem; the cuts being deep enough to remove the inner bark, and the wounds covered immediately with rich soil, formed of one part putrescent cowdung and two parts maiden loam. If kept constantly moist with water, and occasionally with liquid manure, roots will usually be speedily emitted, especially if the place where a bud once was formed be thus kept moist beneath the soil.

But the stock has some other influence over the sap, besides limiting the quantity of sap supplied to the scion—an influence not only arising from the size of its vessels, but from its susceptibility to heat. It has a further influence over the scion by the sap becoming more rich, indicated by its acquiring a greater specific gravity in some stocks than in others, during its upward progress. The specific gravity of the sap of a *Black Cluster* Vine stock on which a *Black Hamburgh* had been grafted was, when obtained six inches from the ground, 1.003, and at five feet from the ground 1.006; but the same *Black Hamburgh*, growing upon its own roots, had specific gravities at corresponding heights of 1.004 and 1.009. This increase is of great importance to a tree's growth when the quantity of sap passing annually through its vessels is considered. The exact amount of this it is perhaps impossible to discover, but its extent may be appreciated by the quantity of moisture their roots are known to imbibe, and by the facts that a small Vine-branch has poured out 16 ozs. of sap in twenty-four hours; a Birch tree a quantity equal to its own weight during the bleeding season; and a moderate-sized Maple about 200 pints during the same period.

The habit of the stock also is of much more importance than is usually considered. If it grows more rapidly, or has larger sap-vessels than the scion or bud, an enlargement occurs below these; but if they grow more rapidly than the stock, an enlargement takes place just above the point of union. In either case the tree is usually rendered temporarily more prolific; but in the case where the stock grows most slowly the productiveness is often of very short duration, the supply of sap annually becoming less and less sufficient to sustain the enlarged production of blossom and leaves. This very frequently occurs in the freer-growing *Cherries* when inserted upon the wild species; and still

more frequently to the Peach and Apricot upon stocks of the slower-growing Plums. It is highly important, therefore, to employ stocks the growth of which is as nearly similar as may be to that of the parent of the buds or scion.

FIG. 2.



Fig. 2. *d* Stem of a Paper Birch (*Betula papyracea*), smooth-barked.

e The stock of the White Birch (*Betula alba*), rough-barked, showing that although the barks unite perfectly, yet that they do advance beyond the scar over the place of union.

FIG. 3.



Fig. 3. *a* The *Pavia lutea*, never exceeding the stature of a shrub.

b The stock of the common Horse-Chestnut on which the scion was cleft-grafted. It is observable in this instance that the stem of the Pavia at the point of junction (*c*) is expanded by the stock to which it is attached. Here, again, the barks remain perfectly distinct.

FIG. 4.

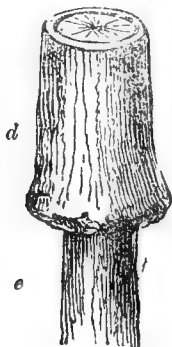


Fig. 4. *d* The White Lime tree (*Tilia alba*).

e The stock of the common Lime or Linden tree (*Tilia Europaea*). Here, each retains, with but a slight enlargement, its own rate of growth.

The earlier vegetation of the stock than of the bud or graft is also important; for if these are earliest in development they are apt to be exhausted and die before the flow of sap has enabled granulation and union between the faces of the wounds at the junction to occur. Mr. Knight's observations upon this point are the results of experience, and are so consonant with the suggestions of science that we will quote them in his own words without comment:—

"The practice of grafting the Pear tree on the Quince stock, and the Peach and Apricot on the Plum, where extensive growth

and durability are wanted, is wrong; but it is eligible wherever it is wished to diminish the vigour and growth of the tree, and where its durability is not thought important. The last remark applies chiefly to the Moorpark Apricot—the *Abricot-pêche*, or *Abricot de Nancy* of the French.

"When great difficulty occurs in making a tree, whether fructiferous or ornamental, of any species or variety, produce blossoms, or in making its blossoms set when produced, success, probably, will be obtained by budding or grafting upon a stock nearly enough allied to the graft to preserve it alive for a few years, but not permanently. The Pear tree affords a stock of this kind to the Apple, and I have obtained a heavy crop of Apples from a graft inserted in a tall Pear stock only twenty months previously, when every blossom of the same variety of fruit in the orchard was destroyed by frost. The fruit thus obtained was perfect externally, and possessed all its ordinary qualities; but the cores were black, and without a single seed; and every blossom, certainly, would have fallen abortively if it had been growing upon its native stock. The graft perished the winter following.

"My own experience induces me to think very highly of the excellence of the Apricot stock for the Peach or Nectarine; but whenever that or the Plum stock is employed, I am confident the bud cannot be inserted too near the ground if vigorous and durable trees are required.

"The form and habit which a Peach tree of any given variety is disposed to assume are very much influenced by the kind of stock on which it is budded. If upon a Plum or Apricot stock its stem will increase in size considerably as its base approaches the stock, and it will be much disposed to emit many lateral shoots, as always occurs in trees whose stems taper considerably upwards. Consequently, such a tree will be more disposed to spread itself horizontally than to ascend to the top of the wall, even when a single stem is suffered to stand perpendicularly. On the contrary, where a Peach is budded upon a stock of some cultivated variety of its own species, the stock and the budded stem remain very nearly of the same size at the point of junction, as well as above and below. No obstacle is presented to the ascent or descent of the sap, which appears to arise more abundantly to the summit of the tree. It appears, also, to flow more freely into the slender branches which have been the bearing wood of preceding years; and these extend, consequently, very widely compared with the bulk of the stock and large branches.

"When a stock of the same species, with the graft or bud, but of a variety far less changed by cultivation, is employed, its effects are very nearly allied to those produced by a stock of another species or genus. The graft generally overgrows its stock; but the form and durability of the tree generally are less affected than by a stock of a different species or genus. Many gardeners entertain an opinion that the stock communicates a portion of its own power to bear cold without injury to the species or variety of fruit which is grafted upon it: but I have ample reason to believe that this opinion is wholly erroneous; and this kind of hardiness in the root alone never can be a quality of any value in a stock; for the branches of every species of tree are much more easily destroyed by frost than its roots.

"Many believe, also, that a Peach tree when grafted upon its native stock very soon perishes; but my experience does not further support this conclusion than that it proves seedling Peach trees, when growing in a very rich soil, to be greatly injured and often killed by the excessive use of the pruning-knife upon their branches when these are confined to too narrow limits. I think the stock in this instance can only act injuriously by supplying more nutriment than can be expended: for the root which Nature gives to each seedling plant must be well, if not best, calculated for its support; and the chief general conclusions which my experience has enabled me to draw safely are that a stock of a species or genus, different from that of the fruit to be grafted upon it, can be used rarely with advantage, unless where the object of the planter is to restrain and debilitate; and that where stocks of the same species with the bud or graft are used it will be found advantageous generally to select such as approximate in their habits and state of change, or improvement, from cultivation those of the variety of fruit which they are intended to support."—(*Trans. Hort. Soc. of London for 1816.*)

The only situation in which we can believe that the stock of another species can be advantageously employed is where the soil happens to be unfriendly to the species from which the bud or scion is taken. This is justified by our observing that in a garden so low-lying as to be very subject to an overflow of water, the

only Pear trees which were at all productive were those grafted upon Quince stocks; and the Quince is well known to endure water much better than either the Apple or Pear.—J.

(To be continued.)

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 181.)

PEARS.

SECKLE (*New York Red-cheek; Shakespear; Sicker*).—Fruit small, obovate. Skin yellowish-brown on the shaded side, and reddish-brown next the sun. Eye small and open, not depressed. Stalk half an inch long, inserted in a narrow depression. Flesh buttery, melting, and very juicy, very sweet and rich, with a powerful aroma.

A most delicious pear. Ripe in October. The tree is an abundant bearer, and very hardy; but does not succeed well on the quince.

Seigneur. See *Fondante d'Automne*.

Seigneur. See *White Doyenné*.

Seigneur d'Esperen. See *Fondante d'Automne*.

Seigneur d'Hiver. See *Easter Beurré*.

Sept en Gueule. See *Petit Muscat*.

Serrurier d'Automne. See *Urbaniste*.

SEUTIN.—Fruit medium sized, oval. Skin yellowish, covered with flakes and dots of russet. Eye prominent and open. Stalk an inch and a half long. Flesh half-melting, coarse-grained, pretty juicy and sweet. Ripe in December and January.

Shakespear. See *Seckle*.

SHOBDEN COURT.—Fruit below medium size, oblate, even in its outline. Skin deep, rich yellow, with a blush of red next the sun, and covered with rough russety dots. Eye very small, almost wanting, set in a small, round, rather deep basin. Stalk very long and slender, inserted in a small cavity. Flesh white, coarse-grained, juicy, briskly acid and sweet, but not highly flavoured. Ripe in January and February.

Short's St. Germain. See *Summer St. Germain*.

Sicker. See *Seckle*.

SIEULLE (*Bergamotte Sieulle; Beurré Sieulle; Doyenné Sieulle*).—Fruit medium sized, roundish-turbinate. Skin smooth, pale yellow, thickly covered with russet dots, and sometimes with a tinge of red next the sun. Eye open, set in a shallow basin. Stalk an inch long, set in a small cavity. Flesh coarse-grained, buttery, and very juicy, rich, sugary, vinous, and aromatic. Ripe in October and November.

SIMON BOUVIER.—Fruit below medium size, obtuse-pyriform. Skin smooth, bright green, becoming yellowish as it ripens, and dotted and mottled with brown russet. Eye small, placed in a slight depression. Stalk three quarters of an inch long, slightly curved, and inserted without depression. Flesh white, tender, and melting, rich, sugary, and finely perfumed. Ripe in September.

Small Winter Beurré. See *Bezi de Caissoy*.

Snow. See *White Doyenné*.

Souveraine. See *Passe Colmar*.

SOLDAT ESPEREN.—Fruit large, obovate. Skin pale lemon-yellow, marked here and there with tracings of russet, and considerably covered with minute dots. Eye large, slightly closed, and placed in a shallow depression. Stalk an inch long, inserted in a narrow cavity. Flesh yellowish-white, buttery, melting, and very juicy, rich and sugary, having somewhat of the flavour of the Autumn Bergamot.

A very excellent pear. Ripe in November.

SPANISH BON CHRÉTIEN (*Gratioli d'Automne; Saffran d'Automne; Spanish Warden*).—Fruit large, pyriform. Skin greenish-yellow, covered with cinnamon-coloured russet, and with a deep lively red colour next the sun. Eye open, set in a depression. Stalk an inch and a half long, slender, inserted without depression. Flesh white, fine-grained and crisp, with a brisk flavour, and fine musky aroma.

A fine stewing pear, in use from November till March.

Spanish Warden. See *Spanish Bon Chrétien*.

DE SPOELBERG.—Fruit about medium size, somewhat turbinate and uneven in its outline, being considerably ribbed and undulating. Skin smooth, pale straw coloured, sprinkled with green dots and patches of russet. Eye large, half open, and prominently set. Stalk an inch and a quarter long, inserted without depression. Flesh yellowish, buttery, not very juicy, sweet, slightly musky, and richly flavoured. Ripe in November.

Spring Beurré. See *Verulam*.

Staunton. See *Gansel's Bergamot*.

SUCRÉE VERT (*Green Sugar*).—Fruit medium sized, roundish-turbinate. Skin pale yellowish-green, covered with numerous green and grey dots, and a few tracings of russet. Eye small and open, set in a wide and shallow basin. Stalk an inch long, inserted in a small cavity. Flesh yellowish-white, melting and very juicy, sugary and perfumed. Ripe in October.

SUFFOLK THORN.—Fruit medium sized, roundish-turbinate. Skin pale lemon-yellow, covered with numerous small dots and irregular patches of pale ashy-grey russet, which are most numerous on the side next the sun. Eye very small and open, set in a deep basin. Stalk short and stout, not deeply inserted. Flesh yellowish-white, exceedingly melting, buttery, and juicy, with a rich sugary juice exactly similar in flavour to Gansel's Bergamot.

A most delicious pear. Ripe in October. The tree is quite hardy, and an excellent bearer, forming a handsome pyramid on the pear stock.

SUMMER ARCHDUKE (*Amiré Roux; Archduke d'Été; Brown Admiral; Grosse Ognonet; Ognonet; Ognonet Musqué*).—Fruit medium sized, turbinate. Skin smooth and shining, yellowish-green, covered with dark brownish-red next the sun. Eye open, set in a shallow depression. Stalk an inch long, stout, inserted in a small cavity. Flesh whitish, rather gritty, juicy, and sweet. Ripe in the beginning of August.

The Summer Rose is also called *Ognonet*.

Summer Bell. See *Windsor*.

SUMMER BON CHRÉTIEN (*Florence d'Été; Gratioli; Gratioli di Roma; Saffran d'Été*).—Fruit large, pyriform, very irregular and bossed in its outline. Skin yellow, with a tinge of pale red next the sun, and strewed with green specks. Eye small, set in an uneven, shallow basin. Stalk two inches and a half long, curved, and obliquely inserted in a knobbed cavity. Flesh yellow, crisp, juicy, sweet, and pleasantly flavoured. Ripe in September.

SUMMER CRASANNE (*Crasanne d'Été*).—Fruit small, roundish, and flattened. Skin pale yellow, entirely covered with cinnamon-coloured russet. Eye wide open, set in a shallow basin. Stalk an inch and a half long. Flesh half-melting, very juicy, sweet, and aromatic. Ripe in the end of August and beginning of September.

SUMMER DOYENNÉ (*Doyenné d'Été; Doyenné de Juillet; Duchesse de Berri d'Été; Roi Jolimont*).—Fruit small, roundish-obovate. Skin smooth, of a fine yellow colour, and frequently with a red blush on the side next the sun, and strewed with dots. Eye small and open, set in a shallow plaited basin. Stalk short, not depressed. Flesh white, melting, and very juicy, rich and sugary.

An excellent early pear. Ripe in the end of July, but

requires to be gathered before it becomes yellow, otherwise it soon decays. The tree is hardy, and a good bearer.

SUMMER FRANC REAL (*Coule Soif; Fin Or d'Été; Franc Real d'Été; Great Mouthwater; Gros Micet d'Été; Grosse Mouille Bouche*).—Fruit medium sized, obovate. Skin smooth, pale yellowish-green, strewed with numerous brown and green dots. Eye small and open, set in a small undulating basin. Stalk short and thick, inserted in a small cavity. Flesh white, fine-grained, buttery and melting, rich and sugary.

An excellent early pear. Ripe in September.

SUMMER ROSE (*Epine Rose; Ognonet; Rose; Thorny Rose*).—Fruit medium sized, oblate. Skin greenish-yellow on the shaded side, and bright reddish-purple on the side next the sun, strewed with russet dots. Eye open, set in a wide and shallow basin. Stalk an inch and a half long, slender, inserted in a small cavity. Flesh half-melting, tender, juicy, sugary, with a pleasant, refreshing flavour and musky aroma.

A very nice early pear. Ripe in August.

SUMMER ST. GERMAIN (*St. Germain d'Été; St. Germain de Martin; Short's St. Germain*).—Fruit medium sized, obovate. Skin greenish pale yellow, mottled and speckled with brown russet. Eye open, set in a narrow and slight depression. Stalk an inch and a quarter long, inserted in a small cavity. Flesh juicy, slightly gritty and astringent, with a brisk, sweet, and rather pleasant flavour.

A second-rate pear. Ripe in the end of August.

SUMMER THORN (*Bugiarda; Epine d'Été Couleur de Rose; Epine d'Été Vert; Fondante Musqué*).—Fruit medium sized, pyriform or long pyriform, and rounded at the apex. Skin smooth, and covered with greenish-russet dots, green in the shade, but yellowish next the sun and towards the stalk. Eye small, set in a shallow and plaited basin. Stalk an inch long, curved, and obliquely inserted without any depression. Flesh white, melting, juicy, and of a rich musky flavour.

It is an excellent autumn pear, ripe in September, but does not keep long.

Suprême. See *Windsor*.

Surpasse Reine. See *Rameau*.

SUZETTE DE BAVAY.—Fruit medium sized, turbinate. Skin yellow, covered with numerous large russet dots and traces of russet. Eye open, placed in a shallow, undulating basin. Stalk an inch long, inserted in a small cavity. Flesh melting, juicy, sugary, and vinous, with a pleasant perfume. Ripe in January and February.

SWAN'S EGG.—Fruit medium sized, roundish-ovate. Skin smooth, yellowish-green on the shaded side, and clear brownish-red next the sun, and covered with pale brown russet. Eye small, partially closed, slightly depressed. Stalk an inch and a half long, inserted without depression. Flesh tender, very juicy, with a sweet and piquant flavour and musky aroma.

A fine old variety. Ripe in October. The tree is very hardy, and an excellent bearer.

Sweet Summer. See *Jargonelle*.

Sylvange d'Hiver. See *Easter Beurré*.

Table des Princes. See *Jargonelle*.

TARDIF DE MONS.—Fruit oblong-obovate, even and regularly formed. Skin of a uniform yellow colour, paler on the shaded side, and with an orange tinge next the sun, strewed with large russet dots. Eye open, very slightly depressed. Stalk an inch long, rather slender, not depressed. Flesh white, tender, buttery, melting, and very juicy, rich and sugary. Ripe in November.

Tarling. See *Easter Bergamot*.

Téton de Vénus. See *Bellissime d'Hiver*.

Téton de Vénus. See *Catillac*.

THÉODORE VAN MONS.—Fruit large, pyramidal. Skin

greenish-yellow, strewed with russet dots and tracings of russet. Eye closed, set in a small, uneven basin. Stalk three quarters of an inch long, inserted without depression. Flesh yellowish-white, juicy and melting. Ripe in October and November.

Thessoise. See *Beurré d'Amanlis*.

(To be continued.)

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 96.)

BATSCHIA.

Nat. ord. Boraginacæ. Linn. Pentandria Monogynia.

GENERIC CHARACTER.—*Calyx* five-cleft. *Corolla* salver-shaped; tube longer than calyx, with a ring of hairs inside at the base; mouth naked. *Anthers* enclosed. *Nuts* four, one-celled, ovate, shining, fixed to calyx bottom.

BATSCHIA CANESCENS (hoary). *Plant* whitely villous; *stem* erect, nearly simple; *leaves* oblong, obtuse, emarginate at apex, remainder rather scabrous; *corolla* tube double length of calyx; *calyx* very short, linear, acute. 2 ft. Yellow. July. N. America.

B. GMELINI (Gmelin's). *Plant* hairy; *stems* erect, simple; *leaves* linear-lanceolate, obtuse; *floral-leaves* ovate-lanceolate, obtuse; *corolla* tube shorter than calyx; *calyx* segments long-lanceolate, acute, unequal. 6 in. Yellow. June. Carolina.

B. LONGIFLORA (long-flowered). *Plant* silky, villous; *stems* erect; *leaves* approximate, long, and linear, margins revolute; *corolla* tube elongated, rather pentagonal, with crenated segments; *calyx* segments long, linear. 6 in. Yellow. June. Missouri.

B. SERICEA (silky). *Stem* suffrutescent, erect, branched trichotomously, villous at top; *leaves* oblong-lanceolate, obtuse, silky above, rather villous beneath; *corolla* tube double length of calyx. 6 in. Yellow. July. N. America.

A little-known genus of plants with handsome yellow flowers, allied to *Lithospermum*. They require a sandy, loamy soil, and free exposure. Seeds are produced freely, which should be saved and sown in April, and transplanted where they are to bloom, three or five together as soon as they can be handled. Some of the dwarf species would make a neat golden-yellow bed. Increased also by taking up the plants as soon as they have done flowering, cutting them into moderate-sized divisions, with roots to each, and planting them in fresh soil in the flower-borders.

BELLIDIASTRUM—DAISY-STAR.

Nat. ord. Asteracæ. Linn. Syngenesia superflua.

GENERIC CHARACTER.—*Florets* of the ray strap-shaped, female; those of the disk tubular and hermaphrodite. *Involucre* sub-campanulate with the scales in one and two series, linear, acute, sub-foliaceous. *Receptacle* conical, naked, spotted. *Achenia* oblong sub-compressed, slightly hispid. *Pappus* in one and two series with numerous flexuous scabrous hairs.

BELLIDIASTRUM MICHELLI (Michell's). *Scape* one-flowered, naked; *leaves* petiolate, obovate, repand, serrate, hairy; *seeds* crowned with pappus. 1 ft. White. June. Austria. Also called *Arnica bellidiastrum*.

A scarce plant allied to *Aster*. The flowers are pretty and star-like, hence its specific name.

To propagate it, take up a plant in April, divide it into moderate sized parts, and replant them immediately in fresh sandy loam. A worthy plant.

BELLIS—DAISY.

Nat. ord. Asteracæ. Linn. Syngenesia superflua.

GENERIC CHARACTER.—*Calyx* hemispherical, scales equal. *Receptacle* naked, conical. *Pappus* none. *Seeds* obovate.

BELLIS HYBRIDA (hybrid). 3 in. White. April. Italy.

B. INTEGRIFOLIA (entire-leaved). *Stems* usually branched, spreading, ascending; *branches* filiform; *leaves* oblong or spatulate, entire; *peduncles* terminal, naked, each bearing one head of flowers; *florets* of the ray white, pinkish. 6 in. White and pink. July. Texas.

B. PERENNIS (perennial common Daisy). *Scape* naked, one-flowered; *leaves* obovate, crenate, veiny. Britain. The double kinds are numerous and constantly increasing. All flowering in June. Growing from three to five inches high.

B. SYLVESTRIS (wood). *Scape* naked, one-flowered; *leaves* obovate, crenate, three-nerved. 9 in. White. June. Portugal.

The Daisy is a favourite flower with both rich and poor. The cottagers' gardens are plentifully stocked with the double varieties. On the continent the nurserymen have turned their attention to improving the varieties with great success; and every cottager may follow their example, and with similar results. The Daisies require a good, not-over-rich, sandy loam, and frequent replantings, or they will perish. The best time to divide them is August or September. They may be planted in beds or as edgings. Take up the plants and pull them in pieces, each piece to consist of a single crown with all its roots as entire as possible; then, the ground being prepared, open a trench, chop down the sides nearly perpendicular, place against it a plant and press some fine earth against it; then, if in a bed, place the next plant five inches off and add the earth as before, and so on till the row across the bed is full; then dig some more of the bed sufficient to allow six inches between the rows, chop down the edge of the trench and plant again as before. If edgings are to be planted, then proceed in a similar way round the beds intended to be edged, by opening a trench deep enough for the roots, and plant them in a similar way, only put them in two inches from plant to plant; then fill up the trench and finish it off neatly, by chopping off the rough edgings outside the row of Daisy plants. The other species may be increased in a similar way, replanting them immediately in fresh soil where they are to bloom. If seedlings of the *Bellis perennis* are desired, then save the seeds of the best sorts and sow them in a warm border in April. Transplant them into a prepared bed as soon as they can be handled, five inches apart every way. Here let them remain to be proved when they flower. Number or name such as are decidedly new and superior, and pull all the others up and throw them away. Then increase the good kinds as directed above, and plant out again in any mode you may think desirable. Some of the varieties imported from abroad are considered tender, and are usually kept in pots under the shelter of a cold pit through the winter.

BELLIUM.

Nat. ord. Asteraceæ. *Linn.* Syngenesia superflua.

GENERIC CHARACTER.—*Calyx* leaflets equal. *Receptacle* naked. *Seed-vessel* conical, with a chaffy, eight-leaved crown. *Pappus* awned.

BELLIUM BELLIDIODES (Daisy-like). *Stolones* creeping; *scape* naked, filiform, one-flowered; *leaves* spatulate. 3 in. White. July. Italy.

B. CRASSIFOLIUM (thick-leaved). *Stems* many, ascending; *leaves* sub-radical, thick, obovate, entire, base attenuated, rather downy; *scapes* downy much longer than leaves. 3 in. Whitish-yellow. June. Sardinia.

B. INTERMEDIUM (intermediate). 1½ in. White. August. Italy.

B. MINUTUM (minute). *Stem* capillary, leafy; *leaves* ovate, petioled. 1 ft. White. August. Levant.

These Daisy-like plants are very interesting. They may be appropriately named the Summer Daisies, for they flower after the real Daisies have done. The first named is an annual, but may be propagated by cuttings; the second requires the shelter of a frame in winter, being only half-hardy.

All propagated in the same way as the common Daisy, which see. Add a little sandy peat to the sandy loam, in which the Daisy thrives.

T. APPLEBY.

(To be continued.)

CULTURE OF TRICHOMANES RADICANS.

YOUR able correspondent "KARL" has with great clearness written a very excellent article in THE COTTAGE GARDENER upon this beautiful species of Fern. Some of your readers, I doubt not, are again reminded of having made a pleasing acquaintance with some specimen of this interesting species, who now regret its loss. Why so unsuccessful in its cultivation? say the few who succeed, with an emphasis upon the monosyllable "why." We regretfully articulate the same, not forgetting to remind them of the scarcity of anything like grown specimens, even growing plants of the same; for are we not (save in name) almost strangers to the oft-repeated "Killarney Fern?"

Hoping it will interest some of your many readers, I will offer a few remarks as to how it may be successfully grown, not so much from practical experience as from close observation of the means employed by an enthusiastic admirer of these plants in our

immediate neighbourhood, with trifling expense, and with little (the word to an admirer is chimerical) trouble.

Indeed, each of your readers may, unassisted, succeed. No greenhouse, not even a pit, is necessary, and certainly I would not intrude a semi-expensive gardener.

The Killarney Fern, of which we are speaking more directly, (our remarks being equally applicable to other species), is the *Trichomanes radicans*, or Irish Bristle Fern. It is found, with slight variations, in at least seven distinct parts of the world, and among these rather plentifully in Madeira. Its fronds seldom are a foot high, of a compound olive green, semi-transparent—beautifully so when seen with the particles of a moist atmosphere condensed upon its fronds. There is a variety named the Long-fronded Irish Bristle Fern (*Trichomanes Andrewsii*). Its general height exceeds one foot. It is very scarce.

The plant obtained, procure a plain glass Wardian Case; size according to the plant; in the centre of this pile some pieces of the best-to-be-procured porous sandstone. The very best for this purpose is found plentifully in Cumberland. It is upon and near this stone that the distinctly pretty Fern, the *Allosorus crispus*, thrives so well.

Having three-parts filled the centre of the Case in this way, procure a piece with as undulated a surface as possible; and this piece, when placed upon the first-named pieces, should make a slightly-elevated centre. With a small copper wire secure the Fern to this centre stone, placing substantial bits of moss upon the roots or other parts of the plant against which the wire might come in contact. Fill the remaining vacancy with peat,—a dark variety of peat found in woods, slightly sandy, is preferable,—dusting a little over the centre stone. Give it just sufficient water to moisten the whole, but no more. Upon this and the after attendance, as regards water, rests much. Say you, How is the water to drain off? How be absorbed so as to require more? Upon this and the above depends the whole—as they are attended to, so you succeed. The absorbing process is accomplished by simply but thoroughly drying the interior of the shade or bell-glass of your Case each morning with a clean glass-cloth. The whole of the soil, &c., is to be kept damp with occasional moistenings. The first morning or two after the same, with a gentle finger, brush the heavier gem-like drops of moisture off the fronds.

In a shady place under a window, in a library, drawing or dining-room, the Killarney Fern in its Wardian Case will thrive well.—Gardener to F. Pryor, Esq., Digswell House, Welwyn.

SOME OLD-FASHIONED FLOWERS.—No. 2.

THE HEPATICA.

THIS charming little plant, one of the beauties of early spring, may be classed amongst the neglected old favourites. No advance has of late been made in the improvement of this class of plants: yet, from the months of February to the middle of April, this little pet stands almost unrivalled in the flower garden; and most effectually does it do its part, for the blossoms arise in prodigious plenty from well-established roots.

There is certainly an elegance attending their low state; and the lively colours of these plants still heighten their excellence and enhance their worth. The flowers appearing before the foliage render them still more interesting, and they make a beautiful show in small beds, or in the borders of the pleasure-grounds.

The double varieties are preferable to the single, although both have their merits. The single varieties come into blossom earlier than the double; while the double varieties have larger flowers and continue much longer in blossom.

The culture of this plant is exceedingly simple, therefore a few remarks will here suffice. I merely allude to this plant in order to persuade those who have flower-beds near the mansion, which are sometimes indispensable to be kept filled, that this old neglected plant is particularly well adapted for the purpose. It does not like to be often removed; for it is well known if the roots are too frequently parted or moved (unless with great care), they are liable to die, besides which the flowers decrease in size. Yet, if planted in beds or borders and not disturbed, they will flower profusely for several years. I state this because plants intended merely to occupy the beds while in blossom should not be parted when planted, but should be grown expressly for the purpose at such a distance apart as to admit a spade being placed under them, so as to lift them in patches without injury to the roots, and deposit them whole in the beds. This is the

method practised by myself, and one I would strongly recommend. The mode of propagation is by parting the roots, which should be done as soon as the plants are out of flower.

The single varieties freely produce seed, and are, therefore, easily increased, with a chance of obtaining new varieties. The seed may be sown as soon as ripe in pots or boxes, in a mixture of light soil, and placed in a shady situation, where they may remain until bad weather sets in. They should then be placed in a warm, sunny situation, where they may remain until the spring. As soon as the plants are large enough to handle, they should be planted in rather a shady place in a bed or border prepared for them of light sandy loam. They should be placed six inches apart every way, and care should be taken when planting to well close the soil round the roots, for worms are liable to disturb them. A little lime and soot should also be sprinkled over the beds in damp weather to prevent the ravages of the slug. The plants will flower in the spring, but they cannot be expected to produce strong blossoms until they are at least three years old.—EDWARD BENNETT, *Osberton*.

NEW BOOKS.

THE ILLUSTRATED BOUQUET.—The first number of the second volume, Part 7, published by the Messrs. Henderson, of the Wellington Road Nursery, is a masterpiece of drawing and colouring to nature from the hands, taste, and talents of Miss Sowerby and Mrs. Withers; beginning with *Gazania splendens* and *Callicarpa purpurea*, plate 29. This is the new bedding *Gazania*, of which we have already given full particulars. *Callicarpa* is one of Mr. Fortune's late introductions from China, and is a bushy, soft-wooded plant, with large clusters of purplish berries from the joints all along the stems, and is a winter greenhouse ornament of easy culture.

The next plate represents ten kinds of *Cyclamen Persicum*—a beautiful group, arranged with the highest degree of effect. The leaves are as varied in their markings as the flowers, in their tints and shades. The whole of them, and many more kinds of this charming flower, may be had cheaper than new Verbenas and in full bloom in a few weeks at the Wellington Road Nursery; fully four pages are devoted to the practical description of the family, and how to treat them from first to last.

The next plate represents a full-sized new double *Camellia tricolor* raised at Florence; and "those who possess the well-known variety named *tricolor* will at once recognise in this the rich combination of white, rose, and carmine tints peculiar to that variety." *Tricolor*, as all the gardening world knows, is a single flower; and it was necessary to add *plena*, or double, to distinguish this from that, and *imbricata* to indicate the form of the petals. *Tricolor imbricata plena* is therefore the name—one of the very finest of all the race.

The fourth plate represents the new *Salvia tricolor*, and a foreign *Petunia* of extraordinary markings, regular as geometry could make it; a purple ground colour, a white band round the edge, and a white Pear-shaped mark in the centre of each of the five lobes of the flower—an extra hit: it is called *Madame Henry Jacotot*. The *Salvia tricolor* is likened to *chamædrioides*, and has a scarlet front, a white centre, a crimson violet at the back, with long spikes of bloom: a Mexican of the usual culture.

The last plate shows three varieties of the celebrated Japan monster Indian Pink, called *Dianthus Heddewigii*, which we have told of in our last report of the Wellington Road Nursery.

The rules, the laws, the reasons, and the suggestions in the accompanying pages are, as usual, highly instructive and altogether most plain and practical. Of all our books this is the first and fairest for the drawing-room.

CARTER'S CHAMPION CUCUMBER.

As the time is approaching for Cucumber forcing, I beg to offer a few remarks on the productiveness of *Carter's Champion* Cucumber. From my own experience I recommend it as decidedly the best for general purposes, especially for amateurs and gardeners with small means, being among that number myself.

I have tried many kinds that have been recommended for productiveness, but none were equal to *Carter's Champion*. I have only two common-sized two-light frames to work with. I make it a rule to prepare the dung and have it all ready for planting on the 1st of February; as linings with me are out of

the question, and the beds are apt to become cold if made up earlier, before the sun has power to assist me.

The first bed being planted with three plants and all right, I begin to prepare for the second, which I plant as before about the middle of April. From these six plants last season I cut 150 Cucumbers, all fine fruit, besides a great quantity of small ones for pickling.

I may add, that this Cucumber is very good, indeed better than any that I am acquainted with for the open ground, if well hardened off and planted out the second week in July.—G. O., *Kew*.

CABBAGE CATERPILLARS.

In dry seasons the crops of Cabbages and Broccoli are often injured by caterpillars, especially in the gardens of cottagers who neglect to destroy them. This is done by picking off the grubs, or squeezing them on the leaves between the finger and thumb. The devouring pests are the larvæ of several kinds of butterflies, but chiefly those of the larger and lesser white ones of the garden. The largest butterfly lays eggs in clusters on the inside of the leaves, and the larvæ keep together awhile, so that several may be squeezed to death at once—I mean before they disperse and feed about the plants; but as they get larger and darker, with bright yellow stripes, they are readily detected. September is the principal month for them; but latter-bred ones last partly through October, and I have known them stand pretty sharp frost.

The eggs of the smaller butterfly are placed singly, and their larvæ always remain so, and may be found on the centre ribs or veins of the leaves, especially in the hearts of young Cabbage-plants. There are various broods of them, from May, or June, to October. Being of the colour of the plants they are not so easily observed.

In a recent publication on British butterflies this grub is figured with a rather bright yellow stroke down each side; both, however, are like the pale yellow stroke on the back, hardly visible except in those of full growth. I have known the green pest since childhood; they were pointed out to me when sent with a branch in hand amongst Cabbages in pursuit of white butterflies whose eggs produced them.

The larvæ of the largest one are most numerous, and afford excellent food for birds, especially the house-sparrow, which is too often destroyed to the loss of the cultivator. But he has still another, and, perhaps, an unknown friend of a different kind in a small ichneumon fly (*Microgaster glomeratus*), which lays its eggs in the caterpillars, perhaps not before they have attained their full growth, or, at least, ceased casting their skins. The small parasite maggots without feet live upon the inner part of the caterpillars. These feed on till they are about to change to the pupa state; when suddenly they shrivel up, and the small destroyers appear through the skins, on which they spin small cocoons in a cluster, and shortly appear in their true form of four-winged ichneumon flies. This curious fact first came under my notice some years back, when I kept some caterpillars to learn the different kinds of white butterflies, the larvæ of which were injurious to the crops of Cabbages.

The proper name of the large one is *Pieris Brassicae*, and the male is smaller than the female, which is, perhaps, the case with all kinds of butterflies. The fore-wings are not so much tipped with black as those of the females, and there is only one dark spot on each of the hind wings. The females are readily known by two large black spots upon each of the upper wings, sometimes united by a dotted dark line. When so, each wing is marked as with a pair of spectacles, under which there is a longish blotch, which unites with the spot on each of the under wings when expanded.

The proper name of the small white garden butterfly is *Pieris rapæ*. The upper wings of the female are tipped with black, with two dark spots on them, and only one spot on each of the under wings. The males of this kind are said to be spotless; but I have never observed them without similar marks as those on the females—at least one spot on the upper wings. However, both species vary in size and colour; indeed, so much so that one might think they were crossbred. This may arise from the condition or health of the insects when in the larva state; but such sports differ from the greenveined white butterfly, whose larvæ attack Cabbages. Its proper name is *Pieris napi*, and is less common than the other two mentioned.

These inhabit all parts of Europe, Asia Minor, and Siberia; in fact they seem to be found everywhere. When their larvæ are confined, they strive to get away about the time of their change to

the pupa state. This accords with the nature of the grubs; for, after they have ceased feeding, they creep to some nook or sheltered wall, on which they spin a little silk and fix themselves, where they pass the winter in the chrysalids. Their manner of proceeding in this respect differs from that of the Gooseberry caterpillars, and also from those that feed on trees—for instance, the Oak and Elm. These either descend the trunk of the trees, or let themselves down by suspended spinning threads, like spiders, to the ground, under which they pass the winter in the pupa state. I have known entomologists dig up chrysalids under old trees, from which they bred most beautiful butterflies and moths in the heart of London.—J. WIGHTON.

THE SWALLOW-TAILED BUTTERFLY.

THE knowledge of insects being so closely connected with horticulture, and books on entomology being so cheap and multiplied, gardeners should study their habits, especially the habits of those injurious to cultivated plants. This would greatly assist them in finding out the best means of destroying them. Besides, the study of entomology is very interesting to those who collect and preserve insects. For instance: on the 25th of August I caught a very fine specimen of the swallow-tailed butterfly on some Phloxes, the first I ever observed on the wing. I have bred this most beautiful butterfly from chrysalids sent me by a friend, who observed that the larvæ fed on the Willow trees. But I think he was mistaken; for better authority states that they feed upon the wild Carrot and other umbelliferous plants. The one I caught seemed to be newly hatched, and is much larger and beautiful than those I bred. It was very active on the wing, but sluggish and easily captured when on the flowers. I have heard of two more being caught this season near Norwich; also of one taken in a corn field near Ipswich. The proper name of this rather rare butterfly is *Papilio Machaon*, and it belongs to the class of yellow or sulphur butterflies, which are the first to cheer us with primrose-coloured wings early in spring. This does not apply to our readers in Scotland, for those early visitants do not inhabit that country. Those who have seen the swallow-tailed butterfly in collections, and are unacquainted with its history, might think it a foreign one; and it is so far such that it is found all over Europe, as also Siberia and India—at least the specimens from those countries differ but little from our native ones; but these vary both in size and colour. All of them, however, are readily known by the two peaks of their tail, from which they derive their name.—J. WIGHTON.

VARIETIES.

ASPHALT, OR ASPHALTUM, is the name given to a bituminous substance of a solid consistence. It probably owes its origin to vegetable matter which has been subjected to a slow process of decomposition or decay, resulting in the production of a bituminous coal, from which, by volcanic agency, the asphalt has been distilled and diffused over the neighbouring district. The largest natural deposit of asphalt is in the island of Trinidad, where the plain known as the Pitch Lake is found. The asphalt from Trinidad is largely used for ships' bottoms, and is reputed to kill the teredo, or borer, which proves itself so very destructive to the wood of ships in tropical regions. Asphalt is also found on the shores of the Dead Sea in large quantity, and is known to the Arabs by the name of *Hajar Mousa*, or Moses's Stone. It likewise occurs in South America, at Coxitambo near Cuenca, in Alsace, and other parts of the European continent, in East Lothian and Fifeshire (Scotland), in Shropshire, &c. During the manufacture of coal-gas, much tarry matter is evolved from the retort, and is received in the coolers or condensers. If this tar be subjected to partial distillation, naphtha and other volatile matters escape, and an artificial asphalt is left behind, which possesses the principal properties, and can be employed for the majority of purposes to which native asphalt is applied. The various kinds of asphalt have a pitchy odour, are of a black or dark-brown colour, but do not soil the fingers; are insoluble in water, sparingly soluble in alcohol; but are in great part dissolved by ether, oil of turpentine, and naphtha. *Petroleum* or Rock Oil, is a native liquid bitumen, which largely exudes from crevices in rocks in many districts, and is essentially asphalt dissolved in naphtha. The specific gravity of asphalt is very near that of water, ranging from 1000 to 1100. When set fire to, it burns readily with a smoky flame, and is often used in the

smaller gasworks as fuel, by being allowed to run very slowly into the furnace-fires. Asphalt, besides being employed for coating the exterior of ships' bottoms, is also used, in a heated condition, for saturating timber which is intended for piles in the construction of breakwaters, river-bridges, and other situations where the combined action of the air, water, and minute animals would soon render ordinary wood rotten and useless. Wooden houses may be preserved in the same manner by a coating of asphalt applied externally; and ground-flooring placed in damp situations is much the better of the spaces between the planks being filled up with asphalt. About 1840 asphalt began to be generally used for foot-pavements in cities, and also for floors of cellars and outhouses. For purposes of this nature it is heated in portable boilers, into which, at a certain stage of the preparation, there is poured a quantity of thoroughly dried sand, gravel, or powdered limestone, which is well mixed with the liquid asphalt. The mixture is then spread on the spot prepared for it; and when cool, forms a hard kind of pavement. Of this method of forming footways high expectations were at first formed; but latterly the process of asphaltting has gone out of use in England, as it is found not to be so durable as stone, and therefore, in ordinary circumstances, more costly. In Paris, however, asphaltting is still extensively practised in the more spacious thoroughfares. The better kinds of asphalt are used in the manufacture of the black varnish, which is employed in forming the enamel which coats the variety of leather known as patent leather. Asphalt is not of itself used in medicine, but its natural solution in naphtha, viz., *Petroleum*, is a valuable agent when applied either externally or internally. The synonyms of asphalt are—Native Pitch, Mineral Pitch, Jews' Pitch, Dead Sea Bitumen, Compact Bitumen, Trinidad Bitumen, and Maltha.—(*Chambers's Encyclopædia*.)

TO CORRESPONDENTS.

NAME OF FUNGUS (*Alethea*).—It is the *Nidularia campanulata*, or bell-shaped *Nidularia*. As it is usually found growing on chips and fragments of wood, some of these probably are mixed with the gravel in the walks where you find the fungus.

PAINT FOR PALINGS (*J. H.*).—We know of no paint better for the purpose, though you are intending to train fruit trees against them, than common stone-colour paint. We know where three coats of paint were given to palings for a similar purpose, the last coat being thickly dusted before it was dry with fine, dry sand, it has retained a hard surface for several years.

SEWAGE (*J. H.*).—The proceedings are too local for general circulation. We will find room for a part of your communications.

PEARS FOR CHESHIRE (*Pyrus communis*).—*Beurré d'Amanlis*, *Comte de Lamy*, *Knight's Monarch*. For walls:—*Passe Colmar*, *Thompson's*, *Soldat Esperen*. It is the roots going down into the gravel, that induces canker and disease. You should therefore practise root-pruning, and bring the roots nearer the surface.

NAME OF PLANT (*A. B.*).—The plant blooming in the open garden is *Clematis balcarica*, or *Minorea Virgin's Bower*, formerly called *Clematis calycina*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

DECEMBER 28th and 29th. SHEFFIELD AND HALLAMSHIRE (Fancy Pigeons). Sec., Mr. Inman New, Sheffield. Entries close December 12th.
DECEMBER 28th and 29th. POULTON-LE-FYLDE. Sec., Mr. J. S. Butler.
JANUARY 2nd and 3rd, 1860. PAISLEY. Sec., Mr. Wm. Houston, 14, Barr Street. Entries close December 26th.
JANUARY 4th and 5th, 1860. PRESTON AND NORTH LANCASHIRE. Sec., Mr. Henry P. Watson, Old Cock Yard, Preston. Entries close December 17th, 1859.
JANUARY 7th, 1860. BRADFORD. (Single Cock Show.) Secs., Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford.
JANUARY 11th, 1860. DEVIZES AND NORTH WILTS. Sec., Mr. G. Saunders Sainsbury, Rowde, Devizes. Entries close December 24th.
JANUARY 18, 19, 20. LIVERPOOL. Secs., Messrs. G. W. Moss and W. C. Worrall.
JANUARY 31st and FEBRUARY 1st and 2nd. CHESTERFIELD AND SCARSDALE. Hon. Secs., Mr. J. Charlesworth, and Mr. T. P. Wood, jun. Entries close January 11th.
FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). Sec., Mr. W. Houghton. Entries close Jan. 14th.
FEBRUARY 29th, and MARCH 1st, 1860. ULVERSTONE. Sec., Mr. T. Robson.
N.B.—Secretaries will oblige us by sending early copies of their lists.

THE OLD AND THE NEW YEAR.

FRIENDS, readers, subscribers, contributors, we wish you all the good you can wish yourselves. The time has again come round when we have to note the conclusion of one year and the

advent of another. Let us be thankful we have been spared to do so.

If that which was said of the Phoenix were true, and if the young one rose from the ashes of the old, and if the bird were capable of reasoning, there must have been even in the throws of dissolution a satisfaction that the old body in process of destruction was by the fact creating another in full vigour and youth. So when we look on the departing year, think lightly on its trials, much on its pleasures, any feeling of sadness is more than compensated by the fact that it disappears to make room for the new one. How grateful should we be for the elasticity of the human mind—for that quality that enables us to view the untried time through a Claude Lorraine glass, to people its periods with our own associations, and to arrange beforehand that we shall avoid the rocks on which we made shipwreck, and be timely warned by the beacons that shone unheeded in our previous time.

The year 1859 has been a favourable one for poultry. Shows have been numerous, well-conducted, and successful. They appear now to be settled on a firm basis. Their utility is no longer contested, because their results are evident. We have no difficulties with them, because the Committees are tried and practised men. There is little disappointment among exhibitors, because they have learned to estimate their birds aright. We may note one thing most encouraging to those who enter the lists, and that is the dissemination of the prizes. From Sir Piers Mostyn's exploit in the Game cock class at Liverpool, to the recent prize lists at Bingley Hall, we have had a succession of new names. Another very gratifying feature is the regular sale of poultry. There are times when there seems to be a falling off in the amount received from sales; but it is not really so. Those who possess good strains have learned wisdom, and have discovered that it is well to realise by putting moderate but remunerating prices on their pens. Three are now sold for the same sum asked for one a few years since. Hence the amount often represents three times as many sales as it did formerly. But if any assurance were necessary that the desire to possess good birds is as great as ever, we have it in the fact, that a Dorking cock was claimed for £15 at Birmingham, and three Grouse Cochins for the same money. We may fairly suppose we are now arrived at the common-sense price of fowls—the happy medium between Mr. Punchard's first notorious pen sold for £2 each, and the ridiculous fact of one bird making £50.

Another gratifying feature is the growing adoption of a Poultry Show as part of an agricultural meeting. We heartily rejoice at this. Everybody is fond of agriculture, everybody takes an interest in the county show, and all like, in some way or other, to be identified with it. Many who cannot enter the arena with cattle can send a pen of fowls; and we believe Societies could add largely to the number of their subscribers by giving attention to this point. One word more on Poultry Shows, and we will proceed to review the classes, as our custom has been for some years. In our favourite pursuit there is competition; but the success of one does not involve the loss of another. The pleasure of a prize has no alloy, and the most successful may survey years of constant triumph without the bitterness of reflecting that his gains have caused the poverty of those who competed unsuccessfully with him.

Dorkings during the past year have gone on increasing in weight. The old winners in this breed have maintained their fame, chequered now and then by the appearance of new names. The weights we have seen would have been deemed impossible a few years since. Not long ago the Silver Greys had separate classes, because size was deemed unattainable coupled with feather. Now they hold their own in open competition.

Spanish have decidedly improved during the last year. They have gone back to the standard of Mr. Davies' day. In 1857 and 1858 they retrograded. They are also becoming deservedly popular wherever eggs are required. The size of their eggs and the fact of their being non-sitters will explain this. In the early part of the year the question of trimming these birds for exhibition was lengthily discussed in our columns. We are glad the firmness of our principal judges decided against it.

We are glad to speak well of Cochins, which are now shown as good as at any period since they were introduced. We must, however, except the Whites, which are not so carefully bred and shown as they used to be. Public opinion has discarded the Blacks. It could not be otherwise, no breed should have a separate class which cannot reproduce itself, and everyone knows it is an impossibility to breed *Black* Cochin cocks.

Gold and Silver-spangled Hamburgs are fast approaching to perfection, especially the former. Golden-pencilled have improved more, perhaps, than any breed we shall have to mention; but the Silvers have lost ground in every way.

There is no fault to find when speaking of the quality of the Polands; but they are not shown in sufficient numbers to encourage Committees to offer liberal prizes for them.

Brahma Pootras have succeeded in making for themselves large and popular classes. They deserve it, and we anticipate for them next year increased numbers and popularity. They have succeeded in raising themselves from the variety class, because they breed truly.

What shall we say of the Game? We can only repeat what we have so often said. They are perfect. They offer a lesson to all exhibitors. However numerous the entries may be, the birds are always in perfect feather and condition. The sweepstakes for single cocks are very popular, and afford a rich treat to those who love these birds—we may as well say to every one, as all admire this breed.

Golden Bantams have improved; but the Silver still fail in colour. They are Silver gilt. Our anticipations of last year were realised when we spoke of our belief that Game Bantams would be favourites with the public. The classes have been numerous and exceedingly beautiful.

Aylesbury Ducks bid fair to attain what was formerly thought a good weight for a Goose. Seeing the facility with which these birds fatten for the table, we are glad to notice the increase in their numbers at every agricultural meeting. We rejoice at anything that marks an increasing interest in poultry, on the part of those who have so many facilities for keeping them. Rouen Ducks have advanced in size and purity. The classes for Buenos Ayrean Ducks have also been in every way successful.

Turkeys are yearly shown heavier than they were, and their average weight is considerably increased.

It will be found that in every breed there is progress. We shall be glad to see the day when more attention is paid to poultry as an article of food, and to the production of eggs. Attention has been drawn to the latter subject by many of our leading journals. The breeds are now thoroughly understood, and we know that much might be done in many yards by the sale of eggs to cover numberless little expenses. We speak, of course, to those who wish their hobby to be self-supporting.

Whatever is asked for one year is sure to be shown the next. This was never better illustrated than in Ducks. Aylesbury and Rouens were to be large, and Buenos Ayrean small, and they are so. The same is true of every breed, and it lends a charm to the pursuit to have something to accomplish.

The most difficult part of our task remains. It is to speak of ourselves. We are happy to thank all those whom we addressed at the outset for a prosperous year. Our circulation, and with it our friends, have increased. We have endeavoured honestly to do our duty impartially by all, to abide by the truth on every occasion, and to promote the prosperity of a pursuit we love. We have been highly gratified at the continuous good feeling that has prevailed throughout the year among all classes of the poultry world.

We have had no complaining, no differences, no angry correspondences. We would hope there have been none: if there have, we trust they will be buried with 1859.

We began with the "Dead March" of the old year; and having performed its last rites, we now strike up the lively "quick step," and wish you all

A MERRY CHRISTMAS, AND A HAPPY NEW YEAR.

THE COLOUR OF GAME FOWLS.

FROM the experience I have had of the various breeds of Game fowls I consider the colour of the plumage immaterial; for there are good birds of every shade.

Peacock, the large breeder, in bygone days—when cock-fighting was allowed as one of the British sports—had a strain of motley hues, principally blue and red dun; but many of his birds were speckled: some were *dun-piles* (if I may use such a term); others red with a dun breast. In fact, the feather was so various that I cannot find words to describe it.

Nevertheless, whenever his cocks were brought into the pit the betting was always odds in their favour. When he discontinued breeding for the pit he gave his stock to Michael Becker, of Ash, Kent; and many a £100 did he win by them. I was

acquainted with Jack Chapman, his feeder, and through him I became possessed of a cock and four hens—one of which was blue, another red-dun, another dun-pile, and another, with the cock, mottled like the Dorkings. All had yellow legs. I once had a Chinese Game cock given to me by a friend who imported it; but it did not show any points of breeding. Its plumage was buff; the sickle feathers black. It had a large rose comb, and a few feathers on the legs like the Cochins. Its progeny proved themselves first-rate birds.—WILLIAM BRENT, *Canterbury*.

BREEDING BLACK HAMBURGHS — FEEDING SPANISH FOWLS.

CAN you inform me how to breed Black Hamburgh cocks? I can breed black hens from any of the Hamburgh hens and a Spanish cock, and some perfect birds among them; but the cockerels throw bronze saddles and other colours. I intend putting a Black pullet to a Silver-spangled cock, if you think she will throw Black cocks. She is a cross between a Spanish cock and Silver-pencilled hen.

Excuse me for troubling you for further information respecting several Spanish chickens that began to gape in June when about three weeks old, and continued till now, when they have begun to run at the nostrils and swell in the face. I think the disease is not the roup, as they eat freely, and are in good condition. I feed them on boiled Indian meal and corn. They have a good run in green fields. They roost in a place nine feet high, next to a wall where a fire is kept nearly night and day.—A CONSTANT READER.

[We know many who keep Black Hamburghs and always breed them true, cocks and pullets. All Black cocks have a tendency to throw coloured feathers. We should advise you to get a cock from some of the good strains: we noticed several at the Tredegar Show mentioned in our number of last week.

Nothing can be worse than your feeding for Spanish fowls, or indeed for any other poultry; it makes *only fat*, and gives no strength. They want no fire. Leaving the warm place you describe, and going into the cold air, will account for all the symptoms you describe. Leave off fire, and Indian corn and meal. Feed them well on ground oats mixed with warm water three times per day; and while the severe weather lasts give them, twice per day, bread and ale. Then let them live naturally without artificial heat.]

A VENTURE IN LIGURIAN BEES, AND A WORD ABOUT MULTIPLYING THE RACE.

THE interest felt by many of your readers in the success of the attempt which is now being made to introduce the Italian bee into this country must be my apology for troubling you with this notice of the result of my first venture in this line. Having, in conjunction with an apiarian friend, ordered (through Messrs. Neighbour and Sons) two Ligurian queens from H. D. Hermann, of Tamins-by-Chur, I received on the 19th of October a "double cassette," containing (as Mr. Hermann's note had previously announced) two queens, "all yellow, and born in the month of May, this year." On taking the box into my hands, I found that the bees in one compartment were noisy and restless; in the other silent as death. On opening the former I found the bees very anxious to make their escape, and at the bottom of the box a breathless queen, in appearance differing but slightly, if at all, from a common English queen. Now this circumstance I was disposed to attribute to its having probably been dead some days, and thus its bright colouring became dark and dingy (as is the case, more or less, with common queens after death). The Ligurian people from No. 1 I led into a straw-cap with comb in it, and then proceeded to open No. 2; and here I was delighted to find the bees as lively as the others, and amongst them, conspicuous for her beauty, a vigorous Italian queen. Taking her in my hand, and admiring the "brightness and brilliancy of her colours," I placed her amongst her Ligurian subjects in the straw-cap. As the day was warm I took them into the garden and allowed them the luxury of a flight, which they seemed to require after their six days' confinement. This was between ten and eleven o'clock in the morning. In the afternoon, about four o'clock P.M., I placed the straw-cap containing queen and people over a flat-topped straw hive, from which I had the same morning removed the queen, after fumigating the stock in the old-fashioned way. The English bees appeared readily to receive

the foreign monarch; but the Ligurian people were nearly, if not quite, all slaughtered during the following night and morning. As the hive was not arranged with bars, I could not satisfy myself of the safety of the queen, except by the quiet and contented state of the stock. For some time after this there ensued an unfavourable state of weather, and but few bees made their appearance until the 23rd of November, on which day a great number came out for a flight, and amongst them a fair proportion of unmistakeable juvenile Ligurians; thus proving not only the well-being, but also the fertility of the "Italish Alps" queen, and, so far, the success of my first venture with the new race of bees. Immediately after the receipt of the first "cassette," I wrote to M. Hermann for a second; but he replies in November, that it is "too late, now, of sending more queens," and states, that he proposes, in the spring, to bring a quantity of beehives to England "his one-self." Then follows his answer to my inquiry as to the distance to which Ligurians must be removed from common bees so as to prevent confusion in the races, and which I quote at length for the benefit of the apiarian readers of THE COTTAGE GARDENER.

"I shall send you a little book, in which you can find why it is possible to multiply the Italish bees of a lower distant,* also in the same apiary, and keep the race pure. But being printed in German and not knowing if you does know that language, I will translate it and send you an Exemplar. With a little practice you may make Italish 20 hives of your bees, in a fortnight, without removing the Bees, besides you have moveable bees enough. It must to multiplied the Italish Drones, and diminished the black Drones,—these are the two first principles, and when the Italish Queen flies out of marry her. The hives with black Drones must be kept under lock and key by a preparation which does not permitt to let go out Drones but working Bees,



and to know early Drones the hive is to be feeded every day with honey provided with Drones bars."†—SIBERT-ON-THE-WOLD.

OUR LETTER BOX.

LIVERPOOL POULTRY SHOW.—It is our duty to keep our readers well informed of all that relates to poultry. We beg, then, to remind them the entries for Liverpool close on the last day of this month. Thanks to the liberality of the prize list and the deserved popularity of the managers of this exhibition, we expect, as usual, it will be the struggle of the *élite* and the tournament of the winners at previous shows.

WEIGHT OF TURKEYS AT BIRMINGHAM (J. M.).—We cannot pretend to know the reasons for the decisions of the Judges at Birmingham. We know it was stated in the Show some were given for weight, some for feather; but, in accordance with their instructions, high condition was to be kept in view. It is also the rule to be guided by form as well as weight. If mere fat and weight decided in the classes, it would be unnecessary to have practised Judges like those gentlemen who act at Bingley Hall.

FEEDING GEESE FOR EXHIBITION (C. R.).—Whole barley is an excellent food in a farm-yard, where birds pick up all other requisites for health. It is not, however, what is wanted for fattening. If it is required to make weight or put on fat, birds must not have much exercise, or they walk off all they put on. Shut your Geese up in an old pigstye or place of the same dimensions, and feed liberally on oats as much as they will eat. Let them also have gravel and grass; at times give them oatmeal for a change. They should fat in three weeks.

LONDON MARKETS.—DECEMBER 26.

POULTRY.

The Christmas market is a spectacle, and none can imagine the quantity of poultry consumed in London unless they have seen it. But it is difficult to make any quotation, as, in the masses of food brought in, there are all sorts—from the smallest and worst to the largest and choicest. As a rule, the heavier the Turkey or Goose is the more it is worth, if the quality is perfect; but, in unusually large birds, every pound above the average adds much to the value.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	5	0 to 6	0	Cock Turkeys	12 0 to 25 0
Fowls.....	3	6 „	4 6	Hen Turkeys	6 0 „ 11 0
Capons	7	0 „	9 0	Partridges.....	1 0 „ 1 4
Chickens	2	0 „	2 6	Pigeons	0 8 „ 0 9
Geese	6	0 „	8 0	Hares	2 6 „ 3 0
Ducks	2	6 „	2 9	Rabbits	1 4 „ 1 5
Pheasants.....	3	0 „	3 3	Wild ditto	0 8 „ 0 9

* He had mentioned 1000 yards in a previous note.
† We have copied the letter literally. We suppose M. Hermann means that there are to be holes large enough to permit the passing in and out of the working bees; but too small to permit the drones to do so. However, we do not undertake to explain the rest of his letter,—Eps.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JANUARY 3—9, 1860.	WEATHER NEAR LONDON IN 1859.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
3	Tu	<i>Galanthus nivalis.</i>	30.591—30.483	38—31	S.W.	.01	9 af 8	1 af 4	25 2	10	4 33	3
4	W	<i>Daphne mezereum.</i>	30.524—30.442	41—35	S.W.	—	8 8	2 4	43 3	11	5 1	4
5	Th	<i>Helleborus foetidus.</i>	30.537—30.380	43—34	E.	—	8 8	3 4	3 5	12	5 28	5
6	F	EPIPHANY. Twelfth day.	30.459—30.312	38—31	S.W.	.02	8 8	4 4	19 6	13	5 55	6
7	S	<i>Helleborus viridis.</i>	30.464—30.402	37—27	N.	—	7 8	5 4	23 7	14	6 21	7
8	SUN	1 SUNDAY AFTER EPIPHANY.	30.603—30.580	38—23	N.	—	7 8	7 4	rises	☺	6 47	8
9	M	<i>Ilex Europæus.</i>	30.702—30.651	36—24	W.	—	6 8	8 4	25 a 5	16	7 12	9

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 41.3° and 31°, respectively. The greatest heat, 54°, occurred on the 7th, in 1854; and the lowest cold, 5°, on the 3rd, in 1854. During the period 140 days were fine, and on 91 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

CINERARIAS.—The plants intended for large specimens must receive their final shift, and be allowed sufficient space to expand their foliage without interfering with or injuring each other. The side-shoots to be tied out.

EPACRISES.—As some of them will be preparing to burst into flower, a little arrangement may be necessary in tying them out to display their spikes of bloom more advantageously.

FUCHSIAS.—If wanted early, the plants that were first put to rest should be selected, and be fresh potted, cutting back the roots, beginning with a small-sized pot; to be shifted into larger when the roots have extended to the outside of the ball. Place them in a nice moist temperature of 50° by day and 40° by night.

HEATHS.—To be looked over, and the dead and decaying leaves removed. The most forward in bud—such as the *Vestitas*, *Vernix*, *Vasciflora*, *Aristata*, *Beaumontia*, and many others, to be tied out, and arranged for the season.

PELAGONIUMS.—When large specimens are wanted, tie out the branches at equal distances, and down as near to the rim of the pot as possible. Air to be given at all favourable opportunities. Water to be given but sparingly, and not overhead.

STOVE AND ORCHID-HOUSE.

Be careful that the night temperature is not raised too high: if kept at 50° in severe weather no ill consequences will result. The atmosphere to be kept rather moist, especially if the weather is bright; and all plants indicating an appearance of starting into bloom to be removed to the warmest part of the house.

CLEODENDRONS.—To be shaken out of their pots; their roots reduced and repotted into small pots in a light sandy loamy compost. Sow seeds, and also of any hard-wooded stove plants.

Water to be given very cautiously to the Orchids, merely sufficient to prevent the plants from shrivelling; and to do this effectually it is necessary to look over them every day. The air of the house to be kept moist by sprinkling the pathways, floors, tables, &c., daily. If any plant is found not to have ripened off its bulbs it should be placed in the warmest part of the house, and the ripening process encouraged. The Brassias, *Cyanoches*, *Cœlogynes*, *Miltonias*, and other such plants, when they are beginning to grow, to be repotted. The compost to consist of turfy peat mixed with a portion of charcoal or broken potsherds, and the pots to be at least half full of very open drainage.

FORCING-HOUSES.

CHERRIES.—Very gentle excitement to be given by fire or artificial heat, with kindly humidity, and abundance of air.

FIGS.—Although they will bear a higher degree of temperature without injury than either Cherries or

Peaches, it is advisable to begin cautiously, as it frequently happens that the more haste with fire the less speed with fruit, and that favourable opportunities of sun and light must be embraced for making sure progress with them.

PEACHES.—Where the trees are coming into bloom it is necessary to be cautious in the application of humidity, and when they have expanded their flowers to withhold it altogether for a time. Fire or other artificial heat to be applied moderately—that is, from 45° by night to 55° by day, particularly when dark and gloomy weather prevails. The houses now commencing to force to be kept moderately moist, and in a sweet healthy state, syringing the trees pretty freely once or twice a-day with tepid water. Shut up early on sunny days, and sprinkle the paths, floors, flues, or pipes frequently.

VINES.—When they have all broken, the superfluous buds must be rubbed off, and the young shoots stopped as soon as they are long enough to admit of the points of the shoots at one bud above the bunch being broken out. In vineries now commencing to force, adopt the practice lately advised of producing, where it can be applied, a kindly humidity by means of dung and leaves, or other such fermenting materials. If they are to be broken principally by fire heat, either by flues or hot-water pipes, copious syringings must be resorted to with tepid water once or twice a-day. Fire heat to be applied principally by day, with air at the same time, and very moderately at night.

WILLIAM KEANE.

BEDDING GLADIOLI.

ABOUT forty or forty-five years back, the first move was made in crossing the old Cape Gladioluses by the Hon. and Rev. the late Dean of Manchester, Dr. Herbert; but his seedlings did not get much under cultivation till about the time of the Burke murders in Edinburgh, in 1827 and 1828.

Mr. Low, of Clapton, was the first nurseryman who advertised them, and with them a few of Colville's cross, in 1830. Sweet took them up for crossing soon after 1820, in Colville's Nursery. One of his earlier seedlings, called *Colwillii*, is in the market to this day; but a better one, named by himself *pudibundus*, is, I believe, lost.

The rest of Sweet's crosses could not compete with the superior qualities of Dean Herbert's breed; the Dean himself having worked them up into a circle which could not be got out of until fresh pollen from a new and very different race could be had, and was obtained. The type plant of these early crosses was *cardinalis*, a tall, crimson flower, with white markings—a kind which is not yet exceeded in merits for the flower garden. It was from seeing a large bed of it in full bloom at Dropmore in June, 1831, that I first took to them, after the manner of a daft body. I wrote to Mr. Low, to send me down every one of Herbert's seedlings, of Sweet's also, and all others that could be had of them, for love or money, about London.

From them, with the spirit of daftheadedness, I crossed

and bloomed ten thousand seedlings thrice told in seven years, and had them by the "skep bushel," like a young Suffolk hero, who had the frost among them last October. He, luckily, got into a good shop for *Gladioluses*, "just turned off a year ago." His predecessor must have been a cross-breeder, and have taken all his flowering "roots" away with him, leaving only a "bushel skepful" to our friend to prove; at which he "was very much pleased to see so many," and much disappointed when he found he had no flowers in the autumn. "I took them up," he goes on to say, "and hundreds of them are not bigger than Filbert-nuts, and some of them are as big as English Walnuts, and there are a few of a fine medium size." Well, being "at a loss what to do with them now. Should they be pulled into pieces, or singly, as they are, most of them in clusters, eight or ten at a cluster? also, will they stand frost, as some of mine turned soft just like Potatoes after they had been frosted?"

Up to the year 1833 there were very few who could give but one answer about how this Suffolk gardener ought to proceed with his three sizes of *Gladiolus* seedlings, supposing them to be such, and not to have been much hurt, or many of them lost by the frost. From 1833 to 1848 or 1850, few who have grown the family could decide which of two courses was the better for him to adopt; and from 1850 to the present hour there have been constantly before our eyes three ways for him to follow, and each of the three was right, and two out of the three ways must have, of necessity, been wrong—been wrong, according to circumstances, if you can understand how that could be. But the fact is, the proper management of *Gladioli* has become a puzzle-peg to all but the very old, and those only who are obliged to learn all about them, in order to make bread and cheese out of selling them.

Going back to 1831, I find that all the *Gladioli* then in cultivation, both the Cape species and the cross seedlings from *cardinalis*, *blandus*, *oppositiflorus*, and *tristis*, required one uniform treatment—to be repotted at the beginning of October; to grow in winter, and to flower in May and June following; to be lifted early in July, and to be kept dry to the end of September.

But in the year 1831 we heard of a new *Gladiolus* on the Continent that was introduced there from Port Natal, in the eastern part of the Cape Colony. It was soon in the English market at 21s. a "root;" and I think I paid that price for it to Mr. Wheeler, of Warminster. It was published as *psittacinus* and *Natalensis*, was more hardy than any of the west Cape species, and of an entirely different habit from them, growing from February to October, and resting all the winter; but it would not cross with any of the other Cape species, or with the crosses between them. It was, moreover, ten times more free in producing offspring bulbs of all sizes, from that of a pin's head to those of all the kinds of small nuts with which we were acquainted; and that soon caused it to reach every part of the three kingdoms, and to be the cheapest and most common of all the race.

As early as 1834 I had more of it than I knew what to do with—not a "bushel skepful," but some quarts of small fry of various sizes; and from the statements of our Suffolk friend, it strikes me that this is his very plant, or something very near it in genealogical descent. The method I then adopted to hurry on into flowering size with that small fry, is the nearest that I can now think of for him to adopt to prove what remains from the frost of his bushel skepful. I drew drills for it as for early Peas, and put in the smallest size just as they now do *Sangster's No. 1* Pea. The second size in a way between sowing early Peas and *Mazagan* Beans, and the third after the manner of early frame Potatoes; and, if you believe me, they all did so well that I have never yet altered the plan. Some of all the sizes flowered the following autumn; but, of course, not such bouncers as the old "roots" did make.

Meantime, and for a long period subsequently, the

cross-breeders were industriously at work within the circle which Dean Herbert abandoned in 1828. Some very fine seedlings were thus obtained, it is true; and to those who did not know to the contrary, they appeared to be great improvements. But they were nothing of the kind in our eyes:—the striped ones were not nearly so good as their father *cardinalis*; *Colvillii* is not half so good as the *cardinal* at the present day; the whites with pale red markings were not superior to *oppositiflorus*, then erroneously in the catalogues as *grandiflorus*; the faint creamy whites with paler markings were not to be matched with *blandus* itself, which brought them into the world; and all the selfs, in rose, purple, and scarlet, were only brighter or fainter than Sweet's *pudibundus* without attaining its full size.

Thus the whole went round and round for the space of full ten years, to the joy and gladness of the know-not-betters, and to the confirmation of the views and the amusement of the old pilgrims, who assert that when once a florist gets into a circle with his crosses, Jupiter himself could never get him out of the rut without fresh blood. And so it was till the now old *psittacinus*, or *Natalensis*, reached Sydney, in Australia; and there, being more at home in the climate and changes of the weather, took to the sporting mood, and crossed with the old blood of *pudibundus*, or one of its allies, producing the "root" now called *Gandavensis*—a most rascally fictitious name, pointing to Ghent as the place of its birth instead of to Sydney, where it first came on the stage.

Well, this *Gandavensis* inherited more of the peculiarities of the Natal parent than those of the other side of the breed; and the result ends in all this confusion in the practice of dealing with the two strains, or three strains, as the dealers hold forth; but assuredly there are yet but two legal strains in the whole family:—the strain of *cardinalis*, which requires to be planted in October, and to rest from the end of June to that time; and the new strain of *Natalensis*, alias *psittacinus*. The so-called strains of *racemosus* and *Gandavensis* are dry as fiddlesticks, casting dust and ashes into the eyes of the best customers, and of no use, or sense, or pleasure to any one but to the know-nothings. The *racemosa* turn was a good hit in the old circle, and nothing more, nor any change of management from the October planting of its kindred. *Gandavensis* being the first-born of a new race or strain from *Natalensis*, cannot stand at the head of that race as long as there is any faith in heraldry; but is the just and lawful heir to the fame, the fortunes, and the success of that celebrated and justly admired turn in the family.

Now, consider well, and submit high but preposterous notions about strains and straining puzzles to the rule of ancient law and common sense; and by one stroke you will necessarily simplify the proper culture of *Gladioli* ten-fold, and in the same ratio increase the demand for them. There is nothing on the face of this earth more simple than to know how to do *Gladioli* when once you get hold of the right key to the potting or planting of them. There are but two keys, and one of them opens from the middle of September to the end of November; and during that period every *Gladiolus* that was born in this world before the *Natalensis* cross-breed, fifteen years back, will do to be planted, and will suffer if it be not planted or potted then; but early in October is the best time to put it in. The second key opens from the first day of February to the last week in May; but, like the autumn ones, to be too soon or too late in the spring, does not suit many of them, and is against the finest kinds decidedly. Any one to whom *cardinalis*, *blandus*, and *oppositiflorus* are not strangers, will easily recognise any of their offspring to a thousand generations; but that knowledge cannot be taught by writing or talking—it belongs to a law of the mind called intuitive perception; one perceives it in the mind's eye, but cannot so describe it as to teach another.

All the kinds in those thousand generations require to be planted in October, and all the rest of them which are still more easy of recognition must not be put in before February; and although these increase in size and numbers, and seed with more certainty by being allowed to grow on from February—their natural time of commencing their annual growth—circumstances peculiar to us and to our climate forbid such early growth; and the chief business of this new year's "gift of the gab" is to forbid such banns altogether, and to put the whole race in motion not later than the middle of February, unless there is some particular aim in view which weighs more heavily with the owners thereof than the sure and certain prejudice to the race itself.

Then the whole story has only two points of semblance—October potting or planting, and February planting or potting: both may be a little earlier without hurt, and both may be a good deal later with a considerable drawback to the future stock.

In the good old times we planted out the first crop of *Natalensis*, or *psittacinus*, the head of the new strain during the first week in February; the second and third on the first and last days of March; and the fourth and last crop at the very end of April. These were in like succession of bloom from June to October; but the two last crops never increased in number of offset-bulbs or in the size of the new flowering bulbs to one-half the number or size of those planted earlier; thus showing as clear as noonday that necessity alone should keep them out of the ground so late in the spring. And mind, too, that this waiting from October to February was acquired by *Gandavensis* from a preponderance in the cross in favour of the habits of *Natalensis*, which begins to make roots only in February. If that cross had been strictly intermediate, like some cross in the habit as much as in the colour, the strain would need to be planted or set to grow, midtime between October and February, or in the dead of winter.

The very newest and the very best of the new Gladioli are of that celebrated stock which Her Majesty Queen Victoria so much admired with the Emperor of the French at Fontainebleau. They were all raised of the strain of *Natalensis*, beginning with *Gandavensis* as the heir. They all require to be allowed to begin to make their yearly roots in February, some of them even as soon as the beginning of the new year; but they are so patient that they will hold on dry till late in May, but that throws them back in ripening late in the autumn. To make the best of them, therefore, until such time as they are as plentiful and as cheap as their progenitors, we ought to have them in the earth, every one of them, as early as February. We should seed every one of them that is not barren, and preserve the smallest "root" till we can speak of them by the "bushel skep," like the Suffolk hero, and then do them exactly as we did *Natalensis* twenty years since—that is, put in four spring crops, one at the beginning of February, two in March, and one in April. The first three crops to be planted under cradles, out of pots, and the last crop in the open air where they are to bloom, and just before planting-out time in May, to remove those in the cradles and put them in where the spring flowers were removed from the previous week.

The value of setting quantities of various bulbs to root close together in temporary quarters, to be afterwards removed for planting in the flower garden, is yet only beginning to draw general attention; but of all the facts which have been proved in the Experimental Garden, this one has the greatest range, and is the one that is the most obviously useful. It is equally valuable in the garden of my lord duke as in that of the man or woman who opens the lodge-gate for him.

The best compost to set all sorts of bulbs thus to root in is a mixture of one-half spent Mushroom-bed, the other half equal quantities of leaf mould and very sandy fresh soil from a common; but for a few weeks they will root

freely in any light stuff, one inch of it under them and one inch over them are quite enough. The bottom of the cradle, or cold frame, or turf-pit, or wherever they are set, ought to be as hard as a path, that the roots may not strike lower down, but run flat till they are taken up for final planting. No root can then be broken, and the flat shape is the best for them at that turning.

Garden-cradles are made of hoops and mats over them, and are just as good and useful for seeds, seedlings, and young bedding-out stuff as they are for such bulbs, but when they are used to stand pots in, as for Cyclamens, Mignonette, and other fancy things, the bottom must be soft with sand or cinder ashes, and be well drained below. However, if any spirited person who can afford it may think of any other plan different from this, and less expensive, all he need do is to buy a small selection, send them here, and say how we are to do them, I engage to furnish him to the very letter of his bent, free of all charges. But I am in justice bound to give him what I consider a very fair beginning; yet he may have his own way, if he knows any more superior kinds.

Bertha Rabourdin, snowy white, and deep crimson blotches.

Maria. Much in the same way as the last.

Madame de Vatrays, ditto ditto. Three virgin beauties.

Penelope, next light shade; a blush with rosy marks.

Hebe, the next to *Penelope* in the same style.

Impératrice, next shade, reaching to a pure salmon.

Madame Suchet, next in degree, and named after the wife of the cross-breeder; always a good card for a beauty.

Egeria, same ground, with an orange tinge in the red markings.

Florian, also salmon and fiery-flamed markings.

Daphne, after the last style.

Baron Laillard, a deeper salmon tint in running shade.

Aglæe, next shade.

Amabilis, rising to clear scarlet.

Gil Blas, not quite so scarlet, but following the shade owing to its crimson markings.

Monsieur Vinchon, turning from scarlet, and leading to

Madame Furtado, a decided carmine.

Neptune, a fine tinted carmine.

Oracle, ditto in reddish carmine.

L'Aurora, nearly ditto.

Mazeppa, splendid carmine and orange.

Monsieur Corbay, more scarlet with the orange of *Mazeppa*, bringing us up to that blended scarlet in

Brenchleyensis, and to perfect crimson in *Vulcan*, and

Président Decaisne, the three highest in this section, and all spring setters from *Natalensis*.

D. BEATON.

THE CULTIVATION OF CELERY AND OTHER SALADS.

FOR growing good Celery considerable merit is due to the gardener. It should be firm and crisp, and have a peculiar nutty flavour. Manure is most essential to this crop; and good forward Celery should have a solid spit of rotten dung to grow in: with this, and abundance of water, it will come very fine. For the later crops so much manure is less essential, and I have found that rotten leaves answer very well for it; certainly less stimulating manure does.*

In the beginning of the month of February I commence sowing my seeds in pots or pans, which are placed to germinate in a Peach-house, and removed to a warm shelf in a greenhouse as soon as the seedlings are fairly up. Here they remain till the end of March, when the season has arrived for pricking them down. For this purpose a level hard piece of ground is selected, over which is laid two or three inches' depth of rotten dung, on the top of which a little mould is sprinkled, and the plants are pricked and attended to with shading and watering as required.

In June they are transplanted into trenches seven feet from centre to centre; and, with due attention to watering and earthing up, become very fine Celery by Michaelmas.

The advantage derived from pricking them down in hard ground with a thin layer of dung is, that they form no tap roots, but are lifted with a dense and compact mass of fibres, which receive no

* We find liquid manure (house sewage) given once a-week, a certain means of obtaining excellent Celery.—EDS.

check, and do not predispose the plant to "run." I have a border containing 600 plants this year, not one of which has started for flower.

For other crops in succession we make later sowings, planting out our latest about the end of August. Much care is taken in the earthing up, the soil being carefully put round the plants with the hands; and we are careful not to smother the heart by earthing it up in too young a state. We grow the large *Manchester Red* for early use, and *Turner's Incomparable* for later purposes.

LETTUCES.

A good Lettuce is always a most acceptable vegetable, and to insure a good supply is an anxious care with most gardeners. Perhaps there never was a worse season for them than the one just past; the extreme dryness of which has caused them in all directions to run to seed.

This crop requires good land, either that which is rich in humus, or has recently had a good coat of organic manure. Guano is an excellent dressing for them. In spring and summer they should always be sown broadcast, as transplanting breaks their tap roots, and favours their disposition to run to seed very much. Constant hoeing is of great benefit to them; and when fit to tie in they should be perfectly dry, or else decay will ensue.

One of the most important of our Lettuce crops is the one for spring use, generally sown about the 25th of August. They should not be permitted to remain too long together in the seed-beds, as it lays the foundation of damp and disease in them; but rather they should be pricked out young, and kept thin and hardy. In some places I have seen large borders thus affected from peculiarity in the locality; and I think judicious thinning and attention the best preventives. The earliest and best Lettuces are generally from the foot of a south wall, and nothing can exceed the delicious flavour and crispness of a well grown specimen of this kind.

The French are very clever in producing early Lettuces under their *cloches*, or bell-glasses. They form sloping banks of old Melon-soil, and the dung of their beds. These banks are a complete mass of light, rich humus; upon them their *cloches* are placed; and thirty plants are the number first put under each glass, to be successively thinned till one or two only remain to come to perfection. These appear in Covent Garden very early in spring.

ENDIVE.

This is a most useful, agreeable, and wholesome salad, possessing great beauty when nicely blanched. Its culture is very simple and straightforward.

The earliest crop may be sown about the middle of June, and successional ones till the middle of August. It grows well upon any land which has been manured for the previous crop, or which has plenty of humus in it. The last-sown crop will be fit for planting out in the beginning of September. This is an important crop; as, if lifted and put into frames, it will supply both the kitchen and the table through the dreary months of winter, wanting only plenty of air and security from frost. In blanching it, if introduced into a Mushroom-shed, it will give it great whiteness and purity.

WATER CRESSES.

It may not be generally known that this Cress may be had in great abundance, and of good quality, by simply planting a row under a north wall; where, from its large produce, it will be found to be a most useful auxiliary to the supply of salad.

BEEET-ROOT.

This delicious salad has many varieties, many of which run large, and are of a somewhat Mangold Wurtzel character. The best sort we have seen is *Turner's Pine Apple Beet*, which is small in size, tender, and of a beautiful colour. It should not be sown till the middle of May, and likes good land.

CHICORY.

A most useful salad, which does well by taking up the roots, putting them into boxes, and blanching them in a Mushroom-shed. If Endive claims our notice for the beauty and delicacy of its form, Chicory is entitled to the same amount of praise as one of the most beautiful of salads.

CUCUMBERS

are esteemed very essential as a salad, although not a wholesome one. They require much attention for their winter production.

The plants for a winter crop should be sown early in August, and grown on with abundant ventilation till they are very strong and rude in health; not allowing them to produce fruit till this stage is reached. Cucumbers for spring use have been so fully before the public, that we would refer every tyro to some of the numerous treatises upon the subject. Their summer culture is also well known, and nothing for this purpose exceeds the common dung-bed, which, if a good lining is put round it in September, will carry them on till November, to be succeeded by the winter crop.

RADISHES.

Thus we have noticed a few of the most salient points in salad growing. There is, however, one adjunct which we have omitted to notice—viz., the Radish. To produce a good crop of these at Christmas (the most difficult time), take in the beginning of October a three-light frame, and fill it with mould up to within three inches of the glass; upon this sow your seed; when up, thin them and put a net over them, to keep the birds away; always give plenty of air, and protection from frost, by covering and mulching round the frame, and you will have nice young Radishes for Christmas. At all other times their culture needs no comment.

There are few things which are more telling in the character of a gardener than his success in salad growing; and it is quite certain that those who fail in this respect do not realise the *beau ideal* of good gardeners.

SMALL SALADING.

Small salading is a very useful addition to these things, requiring but to be sown successionally to insure a supply. Various herbs are sometimes used in salads, such as *Tarragon*, which is forced in pots in winter. We have frequently seen this done without producing almost any shoots. This has been owing to the plants having been cut down too early. They should never have their stems cut down till the base-buds are beginning to push, and this happens also to Pentstemons. This a simple thing; but many persons, I think, have not learned it, and I myself gleaned it from Mr. Cockburn, gardener to Lord Mansfield, at Caen Wood.

Chervil may be had plentifully for sowing, as may also the flowers of the *Nasturtium*.

Burnet is frequently used. It is propagated by division, and is a very common plant.

I have now, I think, exhausted my list of English salad plants. But there is one more plant which is grown *ad infinitum*, in France, and called *Escarolle*. It is much used for stewing, and requires the common culture of Endive. By-the-by, the *Australian Salad Cress*, sent out by Messrs. Henderson, is a nice addition to our Cresses.

H. BAILEY, Nuneham.

HINTS ON ICE-HOUSES AND ICE-HEAPS.

THE management of these so frequently comes under the gardener's care, that, to save a number of private letters, I have stated I would allude to the subject in *THE COTTAGE GARDENER*. My only excuse for doing so being the fact, that the matter has not been noticed for a number of years, for I do not think I have anything new to communicate in addition to what has been stated by Mr. Beaton, and others, in previous volumes.

Some correspondents who are anxious to have a small ice-house are deterred chiefly from the fact, that in sinking in the ground, the neighbourhood in which they live is so level that they would have great difficulty in getting a drain to take away the water from the melted ice. Their object is to have ice not merely for luxury, but also for medicinal purposes; and could such a thing be done, they would like to have it near, or close to, their mansions, instead of at a distance from them. Now, where a regular ice-house is built, it is certainly best to have it on a slope or bank, so that it may be approached with carts on the level, and there may be no difficulty in taking a trapped-drain from its bottom—that bottom being covered with open woodwork so that the moisture may drain off freely. But if that bottom is of chalk or open gravel, and a narrow well of a few feet deep is made in its centre, the moisture from the melted ice will pass away, in general, as fast as it is formed, provided strong plankings are laid across the bottom, and some faggots over the plankings. In all cases, however, of such wells or houses, a drain from the bottom will be desirable, trapped so as to prevent the air entering freely; as, if

water accumulate at the bottom of the well, the evaporation from it will raise such a fog in summer as will rapidly melt the ice.

Such houses are generally made in the shape of an inverted cone, or an egg with the largest end uppermost, and a medium-sized house might be 8 feet in diameter at bottom, 11 feet at the widest part, and 14 or 15 feet deep from the bottom to the top. When bricks are used there is no difficulty in thus having it round; but I have no prejudice at all in favour of such a round house; but for all purposes would as soon have a square building, whether built of stone or wood, or any other material.

In most of these old-fashioned egg-shaped houses there is a long passage leading to the well, with two or three doors, and, in many cases, the ice must be all carried in and out through that passage. With two padded doors the long passage may, in all cases, be dispensed with; and although the ice should be removed through these doors, it will always be an advantage to have an opening at the top for throwing the well-broken ice into the well. I have known several cases of severe illness as the result of men being kept for several hours in these long passages shovelling the broken ice past them.

Where dryness may be secured, there need be no objection to sinking the well wholly below the ground. In soils retentive of moisture, care should be taken to prevent the outside moisture penetrating through the walls, by building them in cement, or raising them partly, or nearly wholly, out of the ground. It is quite a mistake to suppose that to keep ice well you have merely to get it into a hole beneath the surface of the ground. On an average the earth will be warmer all the year round at the depth at the bottom of the well than at the surface. All moisture getting to the wall would melt the ice; the moisture that would ooze out from a wall above the ground would actually cool the interior by evaporation.

I have not had any ice-houses entirely above ground under my own charge; but I have noticed how well the ice kept in several, though, as far as I recollect, half as large again as the size mentioned as small ones above. One I recollect was built of brick-walls nine inches thick, double walls separated a foot or so from each other, and a door in each wall, top densely thatched, and overhanging the outside wall by a couple of feet or so, a stair to go up to the doorway, and a stone stair inside to the bottom of the house. The ice was pitched in from the carts and broken inside, and kept remarkably well. The great secrets in this case were the double wall and the enclosed space for air between them. Of all non-conductors of heat, enclosed isolated air is the best. Neither what we call heat, nor what we call cold, has the power to any great degree to pass through it. I recollect once noticing in the end of June the thermometer in the shade, against the outer wall of such a house, indicating 77°, and another thermometer on the wall inside the ice-well ranging from 32° to 34°, but we shut the doors behind us. In sunk wells this double wall is just of equal importance. The outer one prevents the heat of the soil affecting the ice. I met with a nice example of this some time ago. An old-fashioned ice-well had been so built, and answered remarkably well. In course of time, three or four ice-tubs had to be supplied at the mansion instead of one,—everything in summer had to be cooled with ice,—and the supply from the house, being opened so often, was not equal to the demand. The supposed genius of the establishment counselled the removal of the inner wall, which would at once make the house about three feet wider from top to bottom, and set at liberty so many thousand bricks for other purposes. What could seem more feasible? and accordingly it was done, and the house well filled the next winter; but the enlarged house was emptied fully six weeks earlier than it used to be before. Since then the wagon-loads of straw packed against the walls inside and the trouble would soon cost more than the double wall, and, after all, with far inferior results. Few things are better non-conductors than straw, especially if not much bruised by the flail or threshing-machine, as every space between the joints is, so far, a sealed-up air-tube; but let that straw get thoroughly soaked inside a house, and its non-conducting powers would not only be gone, but the vapour always rising from it would keep a damp fog always resting upon and melting away the ice. I have no faith, therefore, in straw as a non-conductor inside a house, unless it be kept dry. I have a large house which, when filled, generally secures pretty well a two-year's supply; that, too, had been built, I believe, with hollow walls, and the inner one was removed before I knew it, to increase the size; but I soon gave up using packings of straw, having come to the conclusion that, on the whole, from getting damp it did more harm than good.

When either a stone, brick, or a wood-house is raised partly or wholly above the ground-level, covering the single wall, whatever it is, with from six to nine inches of straw neatly fastened on the outside, and with the eaves of the roof projecting far enough to keep that straw dry, will be the best substitute for a double wall; and if the ears of wheat are all removed so as not to entice birds or mice, the straw will last a number of years.

Thus by using hollow walls, or a non-conducting of heat medium, it will be seen that regular ice-houses may be as well partly or wholly above ground as below it; and in the circumstances of soils retentive of moisture, much better above than below. When so built and near the mansion, they could be turned to many useful purposes, with more economy as to ice, than when the ice has to be brought in pails and barrow-loads to the house.

One correspondent proposes building an ice-well near his house on Cobbet's plan, but substituting close, thick boards, and less space between the walls than Cobbet recommends. We have no doubt of its answering even better. It may be just as well to notice Cobbet's plan, which answers well when well managed. He recommends choosing a circular space of ground, placing a post 10 inches in diameter, and 15 feet in height above the ground level, perpendicular in the centre. In a circle 10 feet from the centre post, place fifteen posts, 9 feet high, and the centre of one 2 feet from the centre of the other. In another circle, 14 feet from the centre, are placed fifty-four posts, 5 feet in height, and also two feet from centre to centre. These posts have the tops levelled, so that the wall-plates placed on them enable the rafters to be straight, and to extend considerably beyond the walls or outer posts. The space between the posts is densely and closely packed with straw, four feet or so in width, and the roof will be equally thick. A passage through this straw wall, and two doors rendered close by a covering of woollen cloths, or anything of that kind, finish the whole. The chief objection to the plan is the likelihood of vermin having such free access to the straw, and burrowing and making holes in it, and thus allowing air to get in pretty freely. These holes once made would retain their positions from the very compactness of the straw. Our friend complains of the scarcity of straw, and would rather have his wood walls close on each side, and 15 inches between the two walls. He proposes placing from one-inch-and-a-half to two-inch boards close together, and then fastening three-inch pieces across the joinings, so that, whether the wood swell or contract, there shall be no opening. If he makes the intermediate space about air-tight, we care little what he puts in the space. The air alone will do if isolated; if not thoroughly so, use straw, fern, or sawdust, or any non-conductor most easily accessible, and so dry that it will not heat.

So much for the place: now for the filling. The chief thing is to get ice from good clear water, and pound it well before leaving it. If the water is not clean, the ice will be unfit for preserving many things where fine flavour is an extra consideration. Every space of air enclosed between pieces of ice will hasten the decay of the ice whenever these spaces can gain access to the air above them. When filling in frosty weather, it is a good plan to use a little water for filling up the crevices, which soon freezes the whole into a compact mass. All ice with leaves and pieces of wood in it is to be rejected if better can be got, as they will make a sort of free space round themselves long before the summer is passed. In packing it is advisable to keep the centre the lowest, and the outsides the highest; so that the moisture contained may find its way to the centre, and there be frozen, instead of passing through the ice at the outside and escaping. This same rule should also be attended to in taking the ice out of the ice-house. It is impossible to break the ice too fine—the more like sleet and snow the better, and the firmer packed the better. This is even more necessary when the house for keeping it is small.

As to keeping ice when obtained, the great object is to prevent it being surrounded with a moist stagnant atmosphere. A dry air, though warm, will exert much less influence in melting the ice than a damp air though cold. Two facts tended to alter my views on ice-keeping. First: So long as the ice was above the doorway, or even somewhat above the ground level, it kept very well indeed; because, I imagine, there was so much less moist air in the house, or air of any kind; and until it had sunk somewhat lower it came less under the influence of the increasing heat of the summer acting on the ground surrounding the ice. The second fact was, that in opening such a house in summer after the ice had sunk considerably, a stream of foggy air issued

from the door like the vapour from a wash-house copper. I used to be so anxious not to have the doors open a moment more than was necessary; but I found that the dry, hot air of a summer's day melted the ice less than this moist air hanging about it. The dry, warm air, however, did melt the ice when playing at once upon the ice. A dry non-conducting medium over the ice was therefore seen to be important; and likewise some simple mode of getting rid of the moist air. Both can easily be managed in unison with increased usefulness from the ice-house; as, without such precautions, meat and vegetables, though placed there, will be kept there at the expense of flavour. These evils will be remedied by keeping the air over the ice dry and in movement. Have a hole in the door from two to three inches in diameter guarded with fine wire; and have another of a similar size in the roof, with a hole rising above the earth on the thatching, and then fog can hardly accumulate. Spread a clean cloth over the surface of the ice; split up the middle, so as to be moved easily to either side, when you wish to place articles on the ice, and cover the cloth with six or eight inches of clean straw, to be changed when it shows the least signs of mouldiness. The air thus admitted clears off the vapour and does not act on the ice, owing to the straw on the surface—the only place where, as already remarked, I consider straw to be useful in a regular ice-house. In practice, I may here state, that I never satisfied myself that salt or salt water was beneficial for keeping ice in ice-houses or not. Sometimes I thought it did service, and sometimes the reverse. The science of the matter is somewhat conflicting. Where very low temperatures are wanted, of course salt will be used with ice, and especially with snow; but in such cases it must be used with caution, or there may be too much freezing.

Houses for ice, however—whether below or above ground; whether of brick, stone, or wood—are chiefly useful for preserving various matters in them, and getting rid of anything in the shape of litter. Where ice merely is wanted to be taken to the mansion, it may be preserved in ice-heaps just as well as in an ice-house, and in some respects even better. The principles of action are the same, but the carrying out of these is a little different. Of two favourite positions for an ice-heap we should select, when we can get it, a level space some 24 feet or more in diameter, with a sloping bank above it on one side, and a slope or dell below it on the other. In such a place the ice could be brought to the top of the bank, broken there, and then sent down an inclined plane in the shape of a trough to where the centre of the heap should be. Suppose the heap were to be a cone some 16 feet in diameter, and to be raised 10 feet or 12 feet to a sharp point, then the base for 18 feet or so should be raised, and the ground slope from it on the bank side, as well as the other, and a little ditch be made there, so that no rains on the ground near it should reach the ice. A few pieces of wood, a layer of faggots, and then some litter or stubble, will make a comfortable bottom. This bottom not only secures dryness, but prevents the heat of the earth in summer greatly influencing the heap from below. Men must keep the heap in a proper form—drawing in generally from the base to the summit, and using a little water if the ice is too hard to build nicely. The next best position is an open space, with a natural hillock for its centre. Prepare the bottom in a similar way; but here there will be less danger of water. Carts may be emptied on either side, and the ice shovelled up and put in its place when broken. A cone of that size will require about thirty good loads of ice as taken from the water. The more compact it is built the better it will stand. Though generally built in round heaps, yet an oblong parallelogram would answer equally well. The great thing is to have a sloping side to throw off the wet; and it is of little moment whether a person has one large heap or several smaller ones. When heaps are made oblong, something like a huge Potato-pit, of course the opening to take out ice will be made at one end, in a round one at one side. Much depends on keeping the opening exposed as short a time as possible.

However built the sides must not be too steep, or the coverings will not be easily kept on. When finished as firmly on the sides as possible, it is advisable to wait for a frosty night before covering it; and if that should not come a good shower will do it good, as it will make the outside a dense sheet of ice.

Snow rolled in heaps when well consolidated, and a little water, used to enable the workmen to compress it, is little inferior to ice, either for ice-wells or ice-heaps. When a good fall takes place, and there is an open park to go to, it is easy to get a great quantity of it when fresh fallen, or when there is a slight

thaw. When hardened, however, a little on the surface with frost or wet, it is vain to attempt to roll it into heaps.

The heap being made and finished, the next act is to cover it up securely. A layer of three inches or so of clean Wheat straw should be placed all over it. After that, when possible, the covering next the straw should be of an open nature, and the very outside rather of a close nature. Provided the outside air does not penetrate, the more air enclosed between the outside covering and the ice the better it will keep. Thus after the straw we have seen nine inches of rough stubble put on, and the outside formed of six inches of tree leaves. Again, we have known small Spruce or Larch fagots used above the straw for a foot in depth, and then a thatching of straw from six to nine inches thick, and both answered well. Where tree leaves can be easily obtained, I would prefer three or four inches of clean straw, and then six inches of leaves at first, increasing the amount gradually to twelve or fifteen inches of leaves. When these are once settled it takes a very strong wind to dislodge them, and if the sides are moderately steep rain passes freely down the outside without penetrating to any extent. If the above amount of leaves were put on at once, they might be liable to heat. Any other substance will do, provided the same conditions are observed.

One thing we must guard against, as a cause of failure. Some people, extra careful, put a rough frame over their ice, and the covering over it. I never saw one case in which such a mode answered well. When the ice sinks, the frame does not sink with it, vacancies are formed between the ice and the coverings, these get filled with moist vapour and melt the ice, or sometimes holes are also formed in the covering, by which the warm air outside has free entrance to the heap. By placing the covering at once on the ice, the covering sinks as the ice sinks, and no space is given for damp vapours, nor yet much chance for any openings being formed. At any rate, I have never seen these kindly-intentioned rough frames used but disappointment more or less was the result. It would be better to construct a wood-house at once, and have an air-tube in the roof and doorway. In heaps nothing should come between the ice and the covering.

R. FISH.

ORCHARD-HOUSES.

PERMIT me to correct a slight error in my article of last week. Lines 18 and 19 from top, the house standing north-east and south-west, the sun shines on the north-east side all the morning, and on the north-west side in the afternoon, and not, as in the text, "north-east and south-west." In last paragraph "rest" should be "cost."

I may take this opportunity of saying a little more about ventilation, which I trust will save me some penwork in replying to numerous correspondents. In side-ventilation of span-roofed houses it will be seen that the shutters are exactly opposite, and on the same level. In lean-to houses this should be carefully attended to, as shutters in the back wall on the same level with those in front are quite necessary. For if a house is more than eight feet wide, with a low ventilating shutter in front, and only shutters at the top of the back wall, or at top of the roof, the cool air entering in front becomes rarefied, and ascends diagonally to the top of the house, leaving stagnant air untouched by the current in the lower part at the back of the house. I have seen Peach trees, trained to the back wall of an orchard-house, shed all their blossoms on the lower parts of the trees without setting their fruit, owing to stagnant air.—T. RIVERS.

PORT ELIOT, CORNWALL.

It is certainly much to be regretted that many of the finest country mansions of our nobility are placed in such low and inconvenient situations as very much to detract from that interest which hangs over their otherwise grand architectural features. Doubtless the plea which the builders of such edifices gave for selecting such sites was shelter—perhaps, in some cases, the convenience of water might also afford an excuse—or, in the case of those on a religious foundation, seclusion might be sought after. Whichever of these reasons influenced the builders of our noblest residences it is impossible now to say. Suffice it to say that they are so; and the situation of the one I am now about to describe is no exception to that rule, it being placed in one of those vallies through which a tidal river empties itself into that fine expanse of water called the Hamoaze, but which in more popular language may be called Plymouth Bay. The mansion of Port Eliot is

placed so near this stream, that it is said boatmen in former times were wont to moor their craft to a tree on the lawn. Recent embankments have added a considerable amount of useful space to the grounds on this side; but the site of the house, it is needless to say, remains as before—only a few feet above the level of high-water mark; while in its immediate vicinity the ground rises on all sides to a considerable altitude, affording abundance of the best sites possible for the residence of a nobleman—the country around being as hilly as is convenient for cultivation, without assuming that wild character which poets and novelists call the romantic. On the contrary, the Cornwall hills in this part of the country are well timbered and cultivated, and present as great a degree of fertility as the best districts in England.

While making these observations on the county, I may remark that a railway journey from Plymouth to Truro is perhaps second to none in the kingdom for the beauty of the country it passes through—hill and dale; rural districts and mining districts; wild romantic moors and an interesting sea-board; thriving towns and decayed ones, with nothing about them but the interest of their having once furnished senators to the British Parliament. It is not my purpose to moralise on this and other subjects, but to describe certain features about this interesting place worthy of being better known.

The mansion of Port Eliot, the noble seat of Earl St. Germain's, is placed in a low situation on the southern shores of a stream, which, when the tide is in, is swelled into the condition of a broad river or estuary; the ground, rising gradually from the mansion both east, south, and west, gives it the appearance of being very low. The building also is not lofty, being more wisely built for convenience than for show; it, however, presents specious fronts on all sides, the rising ground on the south side making it appear one story lower than on the north side. The flower garden is on the east side, but dressed grounds surround it on the north and south sides also; the west front being the entrance, and partaking more of the park than the pleasure-ground character. The grounds are more remarkable for their extent, and for the fine specimens of trees and shrubs which they contain, than for any great amount of floral decoration; although there is a nice series of flower-beds radiating in lines to one of the principal windows on the east side. The ground rising from the house on that side showed the flowers to great advantage; but the early part of the past summer, Cornwall, contrary to its usual custom, had suffered from a long period of dry weather, which retarded the growth of everything, and it was only when rain fell at the end of July that growth of any kind took place. They were, however, in a promising condition when I saw them; and some very large Pomegranate trees planted against the mansion on that side, as well as Magnolias and other things which had been taken up and replanted to allow of some alteration being done, showed signs of improvement from the beneficial change to rain from prolonged dry weather. It is needless to say that they had suffered much; but Mr. Lynch, the intelligent gardener there, thought they would come round again.

Beyond the flower garden mentioned above on the east side, the ground continues to rise for some distance, and from detached specimens of Pines and shrubs at length merges into a shrubbery intersected with walks, with occasional fine specimens of trees and other objects—not the least interesting being the Bamboo, which thrives here remarkably well. One of these walks leads to a bathing-house by the side of the stream before alluded to; while other features, as grottoes, seats, &c., diversify the whole. Good peeps of the adjacent country are also seen. A fine bridge of the Cornwall Railway forms a good object of mechanical skill; but healthy thriving trees and shrubs, some Pinuses especially being fine specimens; and ever and anon a plant as a Magnolia, Myrtle, or other half-hardy shrub, would be encountered in the wood, which elsewhere we are only accustomed to see against a wall, and that in the most favourable position too. Doubtless the beneficial effects of a salubrious climate are well seconded by a fertile soil, which seemed to be a dark loam resting on a subsoil of slate, or stone of that character. The part of the grounds near the mansion was in good keeping. Where shrubberies may be estimated by scores of acres, and walks and drives amount to miles, good taste as well as economy would forbid that every portion should be in the same snug trim as the suburban front of some quarter acre or so, where the eye sees every part of it at once. I mention this here without reference to any particular place; for, however neat and well-managed a flower garden or the immediate precincts of a house may be (and that at Port

Eliot was so in spite of extensive alterations that had been made), the more distant parts ought to assume more of that natural appearance becoming the scenery by which they are surrounded; the roads, walks, and other features alone showing that art had been at work. This mode of dealing with the more distant grounds was very wisely acted on at Port Eliot; for some drives and walks extending some miles in a north-westerly direction, though beautifully fringed with Rhododendrons and other evergreens, yet partook of that sylvan character which befits a place a good distance removed from the dwelling.

One of these drives was by the side of the tidal river; the ground on the other side, being closely wooded, rose abruptly in a picturesque manner, exhibiting every feature of rocky glen, open glade and precipice, and richly clothed by Fern, with a suitable mixture of evergreen, must at all times be a delightful promenade.

Another walk led to high rocks of blue slate, with a sort of cavern-like fissure, affording a legend of local import. But one of the most singular features of the place was a summer-house at the distance of some miles from the mansion, on the precipitous rocky coast of the British Channel. This summer-house exposed to the fierce south-westerly gales, which drive their spray a considerable distance inland, was remarkable for the fine healthy evergreens which surrounded it. Evergreen Oaks, Aucubas, and Laurustinuses, seemed to thrive as well there as in the most favoured position inland; and Mr. Lynch told me that Scarlet Geraniums often stood through the winter unprotected, while the deep blue water of the Atlantic (for at this western district it may be called so), was immediately under our feet. A zig-zag pathway leads down the otherwise almost perpendicular rocks. But the salubrity of these south-west winds is so favourable to vegetation, that I was told Potatoes were often cultivated in sheltered corners amongst the rocks, and sent to London in April. Fuchsias and other flowers were in profusion, while the enchanting sea view is magnificent, the bold rocky coast not being less than from four to five hundred feet above the water level.

In the kitchen garden at Port Eliot there were some excellent Pines, mostly of the *Providence* kind; Mr. Lynch being famous for Pine culture. Some good Orange trees were also enjoying themselves out of doors, and in their tubs formed a nice group in an interesting part of the grounds; but the long dry weather had told on the vegetation here as well as elsewhere. The Potatoes having partially ripened in the early summer, had begun to put forth small tubers as a second crop. This, of course, was fatal to the quality of those then taken up for table, otherwise there seemed to be no disease. I was told in some parts of the county the crop was satisfactory and good. Apples and Pears as far as I could judge were more plentiful than they are about London, but the crop was far from being a full one.

Not the least remarkable feature in this fine place is the noble old church adjoining the pleasure-ground, and, like the mansion, fronting the west. This venerable fabric was once a cathedral, before the sees of Cornwall and Devon were united into one at Exeter. The western front, with its deeply enriched archway, presents a fine specimen of the architecture of bygone days. But the body of the church has been modernised and adapted to the large population of the district. A tablet records the names of several bishops who successively held sway here; but there is little else to attract the antiquarian in the inside. The village of St. Germain's has likewise lost its once important position of being an incorporated borough, sending two members to Parliament. The Reform Bill of 1832 did away with that privilege, and, like many other places of similar note in Cornwall, St. Germain's fell into decay in its political capacity; but in a social respect it has doubtless advanced—a rural and mining population seemingly enjoying all the advantages of a prosperous state of things.

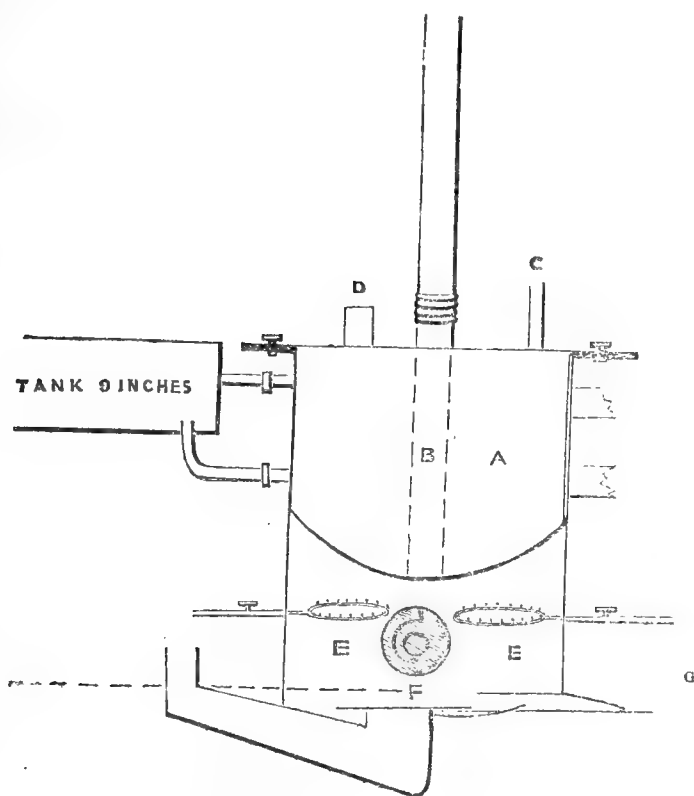
Few people go from home without meeting with something different from what is in common use there. In Cornwall I was struck with the way in which they managed their out-standing corn. The sheaves instead of, as with us, being placed in shocks, were carried and piled up in a sort of stack of about half a load or so. The stack was arranged in such a way that the cut ends of the sheaves all pointed outwards and downwards too, and formed a sort of cone, a single large sheaf being inverted and opened out forming the apex. This plan gave the ends of sheaves every chance to dry and harvest, supposing any weeds to be in them. They would, of course, be stacked in larger quantities the usual way afterwards; but in rainy districts this plan might be copied with advantage.

Amongst implements I noticed a ring-harrow, which was said to be of great service. It has no teeth, but is merely a sort of

network of open rings, amongst which, I suppose, the clods are hustled about until broken fine. The Cornish shovel is a less recommendable tool, and I think not likely to make its way elsewhere. It is in shape like the spade on cards, and has a long crooked handle, enabling the workmen to use it without stooping.

There were some other things peculiar to the county not necessary to mention; but our fair readers will pardon my saying that even in this remote district, and I believe in the most distant part of it too, crinoline and other female extravagances were as plentiful as in Regent Street. So far as I could judge, Truro presented as good designs in architecture outwardly, and as good arrangements inside, as any town of similar extent in England. Perhaps the most important difference a traveller would feel on arriving from London is his timepiece being twenty minutes faster than those of the town; the difference in longitude between this western metropolis and that of the whole empire being that much according to Bradshaw, the authority in such matters. —J. ROBSON.

HEATING A SMALL BOILER BY GAS.



Wooden trunk for admission of air.

- A. The boiler.
- B. Chimney of two-inch screwed gas-pipe leading through middle of water.
- C. Steam safety-pipe opening externally, being of one-quarter-inch pewter-pipe.
- D. To supply water, kept close.
- E. Two gas-burners in rings. One has been sufficient at present.
- F. The door to pass in a light. This is a brass screw plug. They can be bought at any brassfounders. The centre has been cut out, and a small piece of talc inserted, as it is satisfactory to see the light. The door has a cross handle.
- G. Is a circular addition to the boiler, and ought to have at least six inches of ground round the bottom.

THIS is in a greenhouse, span-roofed, with glass on all sides. It is small, being only twelve feet square.

From the outside I have laid a wooden-box ten inches by five inches, opening under the gas-burner. I am just adding the propagating-tank.

To prevent any smell at lighting, there should be a continuation of pipe beyond the burners, opening externally. Letting the gas escape from this for a minute ensures the pipes being full of gas, and, consequently, it is quickly lighted. I think this addition important, as mixed air and gas might puff out in the face, besides vitiating the atmosphere of the house. The boiler, &c., is all of copper, except the chimney, which is gas-pipe, and cost altogether about 70s. Laying on the gas, in my case, was the

most expensive part, as I had some distance to take it. I should recommend three-quarter-inch pipe, as after midnight the pressure is only small, although quite sufficient. The apparatus is placed under a stage, and when not in use hidden by a pot of Ivy flat-trained on purpose.—H. B.

LILIUM GIGANTEUM CULTURE.

LAST spring I bought a bulb of the *Lilium giganteum*. It did not flower last season, but its leaves have long since decayed away, and I have kept it at rest by giving very little water. It is now a fine large bulb, and is in a pot twelve inches wide and eight inches deep. I shall feel obliged by being informed if this sized pot is large enough for the bulb to flower in. The pot appears to be full of roots up to the top of the soil.—M. F.

[You are using your bulb quite right. Keep it dryish, and free from frost until it begins to grow, and then give it plenty of manure waterings, but not too strong at a time. For such a fine bulb we would have preferred a pot a size larger; but that we would have given it whilst the leaves were yet green. We would not shift it now, but wait until another season, unless the pot is very full of roots. Be sure that, after growth has commenced, you give water enough to moisten the whole. If you give enough nourishment, the size of the pot will not greatly affect the stem. Use fibry loam and a little peat.]

A SUBSTITUTE FOR YELLOW CALCEOLARIA WANTED.

SUBSTITUTES of one kind and another have been very prolific during the last year or two. The scythe has been attempted to be superseded by the mowing machine; and the latter is threatened with annihilation when grass lawns are converted into beds of *Spergula pilifera*. When the latter alteration will take place is more than any one can predict. In fact, the friends of this new-fashioned covering for mother Earth are so slow in recording their progress with it, that there are strong doubts of its utility. But it is premature yet to venture an opinion, especially as I have not grown it sufficiently to give one on my own experience.

But there are other substitutes wanted as well as the one to take the place of turf. Some of our old friends in the flower garden are no longer the friends they once were; their services the last year or two being so unsatisfactory, that substitutes of some kind or other must take their place another season. This is very easily accomplished in some things in which there is abundant choice of the article called on to fill a certain position; but when habit and colour become blended together, and that colour one difficult to match, then comes the difficulty, Where is the substitute to come from which succeeds the plant that has failed to give satisfaction? We all know scarlet Geraniums may be followed by scarlet Verbenas, and the latter may be followed by several things scarcely inferior to the two named in brilliancy of colour; but where are we to get a substitute for the yellow Calceolaria, which certainly has not done so well the last two years as it used to do? For brilliancy of colour I have little hopes of obtaining anything to equal it, much less excel it. In years gone by it was amongst the earliest, and continued to the latest amongst the ornaments of the flower garden. Whereas, in 1857, 1858, and 1859, the young plant bloomed profusely early in the summer, but, dry weather setting in, there was no progress or growth; so that, after the shoots of the spring had flowered out, there was a long blank, in which the plant assumed a stunted half-starved appearance, as if it were pot-bound; and although growth commenced again in September, it was too late for flower-buds to be formed to bloom the same season.

Now, although I do not despair of Calceolarias being as ornamental in a moist season as ever they were, yet it would be better if we had something else to depend on in a dry one; or to plant in some of those dry situations where watering by hand cannot be attended to; or, in fact, if we had a yellow-flowered plant of equal merit with the Calceolaria, which delighted in the dry gravelly soils of some of the southern counties, where rain falls more sparingly than it does inland, and where there is no danger of too great luxuriance of foliage, as there is in some places with the scarlet Geranium, Petunia, Heliotrope, and other things.

I do not despair of a substitute for the Calceolaria being found; and I think it may be had from the same source from which

Tom Thumb's rival sprang, of which we have heard so much the past season. The *Nasturtium* is equally plentiful in a yellow condition as in a scarlet: and why not have a yellow one as well as the much and deservedly admired *Tropæolum Lobbianum elegans*? Assuredly a clear yellow may be obtained in some way as a sport; and, being once obtained, there would be no more difficulty in keeping it than the scarlet variety. We all know this class of plants flowers best in the dry hot weather which is so punishing to the *Calceolaria*. I throw out the hint to our flower-gardening friends; and I hope they will not be long in obtaining a variety with shorter leafstalks than the common *Nasturtium*, so as to show the flowers clear above the foliage, and one with flowers more conspicuous than the old *Tropæolum Canariensis*, which is far from despicable as a flower-garden plant even now, especially as "yellows" are scarce; but it has not all the good properties wanted in a close compact bedder, and I shall be anxious to hear of some other variety being announced nearer that standard of perfection so much aimed at.

While on this subject I should like to hear the opinion of such of our readers as have tried *Gazania splendens* as a bedding plant. I confess being a stranger to it; but if it is not a great improvement on *G. rigens* and *G. uniflora*, both of which I have occasionally used for the last twenty years, I fear it will not be much of a favourite. The most interesting feature I could see in *G. uniflora* was the whiteness of the under side of its foliage, which showed very much on a windy day. There never was sufficient flower to entitle it to a place in the front rank of bedding plants. The past season it has not improved its position with me; but the new one may be better, and I should like to hear from those who have grown it what its merits are.—J. ROBSON.

TWELVE OF THE BEST ORNAMENTAL FOLIAGED PLANTS FOR 1860.

Now that plants are generally in a dormant state, and leisure is afforded us to devote a few thoughts upon the coming campaign, it will, perhaps, be interesting to some of your readers to give the enumeration of twelve of the best and most attractive foliaged plants for the ensuing season, with a few condensed practical hints for their management, in the hope that the period is not remote when the habits of this beautiful and useful class of plants will become better known and more largely enjoyed.

POTHOS ARGYREA.—A native of Borneo, delights in a mixture of turfy peat, sharp silver sand, and a little sphagnum chopped very fine; start in March, on a bottom heat of 70°, and with an atmospheric temperature of from 75° to 80°. A shady part of the house should be selected for this gem of Arads.

ANECTOCHILUS VEITCHII.—A native of Borneo, should be grown in shallow pots half filled with broken potsherds and small pieces of very fibrous good brown peat, mixed with pieces of charcoal broken fine, and sharp silver sand. The top of the soil covered with sphagnum chopped fine, and the plant covered with a bell-glass, maintaining an atmospheric temperature ranging from 70° to 85° from March, and shading from the intensity of the solar rays.

CYANOPHYLLUM MAGNIFICUM.—A native of Madagascar, requires a mixture of turfy peat and loam (a fourth of the latter), and potsherds broken fine, with charcoal and silver sand, care being taken that good drainage is secured. The plant to be shifted in March, and plunged close to the glass in a bottom heat of 70°, with a steady atmospheric medium of 75° to 80°.

DIEFFENBACHIA MACULATA.—A native of the Tropics, and is semi-aquatic, delighting to have its spongioles in water heated to about 80°, and potted in a mixture of fibrous peat, strong turfy loam, one-quarter leaf mould and silver sand, with a good proportion of drainage. It is possible to obtain a good specimen of this truly gorgeous plant in the absence of an aquarium, by saturating the atmosphere of the house with moisture two or three times a-day during the growing season—viz., summer months.

ANANASSA SATIVA VARIEGATA.—A native of South America, requires similar treatment to that of the ordinary Pine Apple. Potted in rough fibry peat and loam, with leaf mould one year old, and plunged in a steady bottom heat of 80° to 85°.

PANDANUS JAVANICUS VARIEGATA.—A native of South America, of easy culture; a mixture of rough peat, loam, and silver sand, with a bottom heat of 70° to 75°, with water, as in the case of the preceding, slightly diluted with liquid manure, are the chief of its requirements.

BEGONIA ARGENTEA.—Continental hybrid, delights in a mixture of fibry peat, loam, leaf mould, with silver sand and pounded charcoal, and plunged in a bottom heat of 65° in March, with an atmospheric temperature of 75°, and watered with diluted liquid manure, but sparingly till the growth has attained its maximum; at which season it is a great absorbent, and requires, like many of the fine-foliaged plants, a good supply of water to prevent exhaustion, which is the agent whereby the foliage becomes impaired and unsightly.

BEGONIA MARSHALLII.—A garden hybrid. For treatment see the preceding.

CALADIUM CHANTINII.—A native of the banks of the River Amazon. This is a bulbous-rooted plant, starting into growth about February or March, but which is much regulated by the period it emerges into dormancy. As soon as indications are presented of activity, the bulbs should be potted and plunged into a bottom heat of 75°, with a humid atmospheric temperature of 80°. For potting, a mixture of peat, loam, leaf mould, and a little dry cowdung grated among the soil should be used, securing an efficient drainage. As soon as the expansion of the foliage commences, an application of clear liquid manure should be given every two or three waterings; and as the season advances, increase the temperature and the humidity, as a dry and arid temperature is fatal to the beauty of these natives of tropical reeking swamps.

CALADIUM ARGYRITES.—From the same locality, and should be treated like the preceding.

MARANTA PORTEANA.—A native of Brazil, requires the finest turfy peat, well mixed with pounded charcoal, potsherds, and silver sand, securing a good drainage. About the middle of March, partly plunged in a gentle bottom heat of 60° to 65°, with an atmospheric temperature of 70° to 75°, with a fair degree of humidity. This genera delights in shade, and is very impatient of strong solar light.

MARANTA REGALIS.—From the same climate, and should be treated like the preceding.—J. RANSLEY TANTON, *Gardener to H. O. Nethercote, Esq., F.H.S., Moulton Grange.*

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 197.)

PEARS.

THOMPSON'S.—Fruit medium sized, obovate. Skin pale yellow, and considerably covered with a coating and dots of pale cinnamon-coloured russet. Eye open, set in a shallow basin. Stalk an inch and a quarter long, inserted in an uneven cavity. Flesh white, buttery and melting, very juicy, exceedingly rich and sugary, and with a fine aroma.

One of our best pears. Ripe in November. The tree is quite hardy, an excellent bearer, and succeeds best on the pear stock.

TILLINGTON.—Fruit about medium size, short pyriform, rather uneven in its outline. Skin smooth, greenish-yellow, covered with a number of light brown russet dots. Eye open, scarcely at all depressed. Stalk short, fleshy, and warted at its insertion. Flesh yellowish, tender, buttery and melting, not very juicy, but brisk and vinous, with a peculiar and fine aroma.

This is an excellent pear, ripe in October, the fine piquant flavour of which contrasts favourably with the luscious sweetness of the Seckle, which comes in just before it.

Tombe de l'Amateur. See *Nouveau Poiteau*.

De Tonneau. See *Uvedale's St. Germain*.

Tres Grosse de Bruxelles. See *Uvedale's St. Germain*.

Triomphe de Hasselt. See *Calebasse Grosse*.

TRIOMPHE DE JODOIGNE.—Fruit large, obovate, regular and handsome. Skin yellow, covered with numerous small russety dots and patches of thin brown russet. Eye open, set in a slight depression. Stalk an inch and a quarter long, curved, and inserted without depression. Flesh yellowish-white, rather coarse, melting, juicy,

sugary, and brisk, with an agreeable musky perfume. Ripe in November and December.

TRIOMPHE DE LOUVAIN.—Fruit medium sized, obovate. Skin covered with fawn-coloured russet, and densely strewn with light-brown russet dots; except on the exposed side, where it is of a deep dull red. Eye open, set in a shallow basin. Stalk an inch long, thick, with a fleshy protuberance on one side. Flesh white, crisp, juicy, and sweet; but decays at the core before it begins to melt. Ripe in the end of September.

De Trois Tours. See *Beurré Diel*.

Trompe Valet. See *Ambrette d'Hiver*.

Trout. See *Forelle*.

Truite. See *Forelle*.

Union. See *Uvedale's St. Germain*.

URBANISTE (*Beurré Drapiez*; *Beurré Picquery*; *Louise d'Orleans*; *Picquery*; *St. Marc*; *Serrurier d'Automne*; *Virgalieu Musquée*).—Fruit medium sized, obovate, or oblong-obovate. Skin smooth and thin, pale yellow, covered with grey dots and slight markings of russet, and mottled with reddish brown. Eye small and closed, set in a deep, narrow basin. Stalk an inch long, inserted in a wide and rather deep cavity. Flesh white, very tender, melting, and juicy, rich, sugary, and slightly perfumed.

A delicious pear. Ripe in October. The tree is hardy and an excellent bearer, forming a handsome pyramid either on the pear or the quince.

UVEDALE'S ST. GERMAIN (*Abbé Mongein*; *Angora*; *Belle de Jersey*; *Bolivar*; *Chambers' Large*; *Comtesse de Treveren*; *Dr. Udale's Warden*; *Duchesse de Berri d'Hiver*; *German Baker*; *Lent St. Germain*; *Pickering Pear*; *Pickering's Warden*; *Piper*; *Royale d'Angleterre*; *De Tonneau*; *Tres Grosse de Bruxelles*; *Union*).—Fruit very large, sometimes weighing upwards of 3 lbs., of a long pyriform or pyramidal shape. Skin smooth, dark green, changing to yellowish-green, and with dull brownish-red on the exposed side, dotted all over with bright brown and a few tracings of russet. Eye open, set in a deep, narrow cavity. Stalk an inch to an inch and a half long, inserted in a small cavity. Flesh white, crisp, and juicy.

An excellent stewing pear, in use from January to April.

VALLÉE FRANCHE (*Bonne de Kienzheim*; *De Kienzheim*).—Fruit medium sized, obovate or obtuse-pyriform. Skin smooth and shining, yellowish-green, becoming yellowish as it ripens, and covered with numerous small russet dots. Eye set in a shallow basin. Stalk an inch long, inserted without depression. Flesh white, rather crisp, very juicy and sweet.

A good early pear. Ripe in the end of August. The tree is an immense and regular bearer, very hardy, and an excellent orcharding variety.

VAN ASSCHE.—Fruit large, roundish-oval, bossed and ribbed in its outline. Skin yellow, covered with flakes of russet on the shaded side, and with beautiful red on the side next the sun. Eye half open, set in a ribbed basin. Stalk half an inch long, inserted in a small cavity. Flesh half-melting, very juicy, rich, and aromatic. In use during November and December.

Van Donckelaar. See *Marie Louise*.

Van Marum. See *Grosse Calebasse*.

VAN MONS LÉON LE CLERC.—Fruit very large, oblong-pyramidal. Skin dull yellow, covered with dots and tracings of russet. Eye open, set in a shallow basin. Stalk an inch and a half long, curved, and inserted in a shallow cavity. Flesh yellowish-white, buttery and melting, very juicy, rich, sugary, and delicious.

A remarkably fine pear. Ripe in November. The tree is an excellent bearer, succeeds well as a standard in warm situations, and forms a handsome pyramid on the pear stock.

VAN DE WEYER BATES.—Fruit below medium size, roundish-obovate. Skin pale lemon yellow, covered with small brown dots and a few veins of russet of the same colour. Eye very large and open, set in a moderate depression. Stalk an inch and a quarter long, inserted between two lips. Flesh yellow, buttery, and very juicy, rich and sugary, with a pleasant aroma.

One of the finest late pears. Ripe from March till May.

Vergalieu Musquée. See *Urbaniste*.

Verlaine. See *Gendesheim*.

Verlaine d'Été. See *Gendesheim*.

VERT LONGUE (*Mouille Bouche*; *Mouille Bouche d'Automne*; *New Autumn*).—Fruit medium sized, pyriform. Skin smooth and shining, pale green, becoming yellowish about the stalk as it ripens, and covered with numerous minute dots. Eye open, set in a shallow basin. Stalk an inch and a half long, not depressed. Flesh white, melting, very juicy, sugary, and richly flavoured. Ripe in October.

Verte Longue d'Hiver. See *Echassery*.

VERULAM (*Black Beurré*; *Buchanan's Spring Beurré*; *Spring Beurré*).—Fruit large, obovate, resembling the Brown Beurré in shape. Skin dull green, entirely covered with thin russet on the shaded side, and reddish-brown thickly covered with grey dots on the side next the sun. Eye open, set in a shallow basin. Stalk an inch long, slender, inserted in a small cavity. Flesh crisp, coarse-grained, rarely melting, unless grown against a wall in a warm situation, which is a position it does not merit.

An excellent stewing pear, in use from January till March. When stewed the flesh assumes a fine brilliant colour, and is richly flavoured.

Vindry. See *Echassery*.

VICAR OF WINKFIELD (*Belle Andrenne*; *Belle de Berri*; *Belle Heloise*; *Beurré Comice de Toulon*; *Bon Papa*; *Curé*; *Monsieur de Clion*; *Monsieur le Curé*; *Paternoster*).—Fruit very large, pyriform, frequently one-sided. Skin smooth, greenish-yellow, with a faint tinge of red on the side next the sun. Eye open, set in a shallow basin, and placed on the opposite side of the axis from the stalk. Stalk an inch and a half long, slender, obliquely inserted without depression. Flesh white, fine-grained, half-melting, juicy and sweet, with a musky aroma.

A handsome pear, which in warm seasons, or when grown against a wall, is melting. It is also a pretty good stewing pear. In use from November till January.

Vigne de Pelone. See *Figue de Naples*.

VINEUSE.—Fruit medium sized, obovate. Skin smooth, pale straw colour, with slight markings of very thin brown russet, interspersed with minute green dots. Eye open, frequently abortive, set in a shallow depression. Stalk short and fleshy, inserted in a deep, narrow cavity. Flesh yellowish-white, exceedingly tender, melting, and very juicy, of a honied sweetness, and a fine delicate perfume.

A delicious and richly-flavoured pear. Ripe in the end of September and beginning of October.

VIRGOULEUSE (*Bujaleuf*; *Chambrette*; *De Glace*).—Fruit large and pyriform. Skin smooth and delicate, pale lemon colour, with a tinge of brown on the side next the sun, thickly strewn with russet dots. Eye small and open, set in a small, narrow basin. Stalk an inch to an inch and a quarter long, inserted without depression. Flesh yellowish-white, buttery, melting, and very juicy, sugary, and perfumed. November till January.

Warwick Bergamot. See *White Doyenné*.

White Autumn Beurré. See *White Doyenné*.

White Beurré. See *White Doyenné*.

WHITE DOYENNÉ (*Beurré Blanc*; *Bonne Ente*; *Citron de Septembre*; *Dean's*; *Doyenné Blanc*; *Doyenné Picté*; *Neige*; *Pine*; *St. Michel*; *Seigneur*; *Snow*; *Warwick Bergamot*; *White Autumn Beurré*; *White Beurré*).—Fruit above medium size, obovate, handsome, and regu-

larly formed. Skin smooth and shining, pale straw colour, sometimes with a faint tinge of red next the sun, and strewed with small dots. Eye very small and closed, set in a small, shallow basin. Stalk three quarters of an inch long, stout, fleshy, set in a small, round cavity. Flesh white, fine-grained, buttery, and melting, rich, sugary, with a fine piquant and vinous flavour, and a delicate perfume.

A delicious fruit. Ripe in September and October. The tree is hardy, a free bearer, and succeeds well as a pyramid either on the pear or quince.

Wilding of Caissoy. See *Bezi de Caissoy*.

Wilhelmine. See *Beurre d'Amanlis*.

WILLERMOZ.—Fruit large, obtuse-pyriform, ribbed and bossed in its outline. Skin of a golden yellow colour, with a red blush on the exposed side, and covered with fine russet dots. Stalk an inch long, woody. Flesh white, fine-grained, buttery, and melting, very juicy, sugary, and highly perfumed. Ripe in October and November.

William the Fourth. See *Louise Bonne of Jersey*.

Williams'. See *Williams' Bon Chrétien*.

WILLIAMS' BON CHRÉTIEN (*Bartlett; De Lavault; Williams'*).—Fruit large, obtuse-pyriform, irregular and bossed in its outline. Skin smooth, of a fine clear yellow, tinged with green mottles and with faint streaks of red on the exposed side. Eye open, set in a shallow depression. Stalk an inch long, stout and fleshy, inserted in a shallow cavity, which is frequently swollen on one side. Flesh white, fine-grained, tender, buttery, and melting, with a rich, sugary, and delicious flavour, and powerful musky aroma.

One of the finest of pears. Ripe in August and September. It should be gathered before it becomes yellow, otherwise it speedily decays. The tree forms a handsome pyramid, and is a good bearer.

WINDSOR (*Bell Tongue; Bellissime; Figue; Figue Musquée; Green Windsor; Grosse Jargonelle; Konge; Madame; Madame de France; Summer Bell; Suprême*).—Fruit large, pyriform, rounded at the eye. Skin smooth, green at first, and changing to yellow mixed with green, and with a faint tinge of orange and obscure streaks of red on the exposed side. Eye open, not at all depressed. Stalk an inch and a half long, inserted without depression. Flesh white, tender, buttery, and melting, with a fine, brisk, vinous flavour, and nice perfume.

A fine old pear for orchard culture. Ripe in August. It should be gathered before it becomes yellow.

(To be continued.)

CULTURE OF PEACHES AND NECTARINES IN POTS.

A GREAT deal has lately been written on the culture of the Peach and Nectarine in pots for forcing or for the orchard-house; but there are some points of management on which I should very much like to obtain further instruction from those who have been successful. Perhaps the best way for me to proceed is briefly to describe my own plan; so that, if any part of it appears to be faulty, the error may be pointed out, and the reason given for the mode recommended instead.

Beginning with maiden, or two-year-old trees. They are planted in pots in the autumn or early winter of a size suitable to the roots; so that they may not, on the one hand, be forcibly crammed in—or, on the other, have a large quantity of soil placed about them. This latter, I consider, the worst error of the two, as every one knows the evil of over-potting any kind of plants. Thus firmly potted in the usual soil, the trees are put in a sheltered place in the open air, the pots plunged or covered with half-decayed manure, so as to be secure from the severest frost. Here they remain during the following season, making their shoots, and being stopped and trained as desired, until about the beginning of September; when they are removed under glass wherever convenient, in order that the wood may be thoroughly ripened. When this appears to be the case, which will

be about the end of October, I am not quite decided which is better—to allow them to remain under glass all the winter and during the following growing season; or to place them in the open air again, there to remain until they are taken in to be forced (or otherwise merely forwarded under glass without fire heat) in succession, as may be required. There seems to be a difference in practice among gardeners on this point—see *Mc Ewen Rivers, &c.* I therefore should like to have an opinion, with reasons for the method recommended. One year I exposed them to the frost, in hopes of killing the brown aphis; but I found that even severe frost had no effect upon them.

I have commenced cultivating Peach trees in pots for the last three or four years with moderate success; but I had some little experience of the method about thirty years ago. About that time I was at the sale of a gentleman's effects in this neighbourhood (the more elevated part of Northamptonshire), in the winter season, and found one lot to consist of several nice bushy Peach and Nectarine trees in large pots, well set with abundance of blossom-buds. I purchased them, and placed them in a house and pits which I had then in forcing, and obtained from them a very fair crop of fruit—of far better flavour than that from the established trees growing in the borders. I forced them again the next year, but found they lacked nourishment. This induced me in the following autumn to have the trees taken out of the pots, and much of the soil removed, so as to disturb the roots as little as possible. They were put again into the same pots, as they were the largest I had. One or two when taken out were accidentally deprived of nearly all their old soil, and the roots considerably disturbed; so I supposed these would entirely fail with regard to fruit the ensuing season—but, to my surprise, they bore fruit as well as the others whose roots had not been so much disturbed. This experience has guided me in my present management since I have commenced growing them again; and my plan now is to have two sets of trees in pots for forcing, fruiting them alternately. Those that have borne a full crop one season are taken out of the pots about October, and put into the same or larger pots according to the size of the tree, and with almost entirely new soil. These the following year are merely grown under glass, but not forced at all; and by the autumn they have filled the pots with fresh roots and are in good condition for forcing again in their turn—not disturbing the roots again in the autumn, as the others are that have borne a crop of fruit the previous summer. These, then, being so prepared, and the wood early and thoroughly ripened, are placed when forcing begins so that their roots may easily penetrate through the bottom of the pots, to keep up a due supply of nourishment until the fruit is ripe. They are placed, either on a station in a border, according to the plan adopted by Mr. Rivers; or, if on a platform, a box full of soil is placed under each, which answers the same purpose.

Speaking of Mr. Rivers, I see in his work entitled “The Orchard-House,” he seems to say that in 1849 he discovered the method of growing fruit trees in pots; whereas it was about the year 1829 that I first grew them in that way, and the gentleman from whom mine were purchased was growing them in like manner—so that the method could not have been very uncommon thirty years ago. But perhaps Mr. Rivers merely means that he was the originator of the system of allowing the trees to extend their roots out of the pots into the soil beneath. No doubt he was so; and whenever he gives his experience on the subject, it causes great interest and attention in the minds of all who are trying his method, whether in an orchard or forcing-house.

I ought to have stated that when the trees are first procured and potted, whether maiden or otherwise, I have found it much the best not to put them under glass until the following September; then to have their wood thoroughly ripened for fruiting the following year.—CLERICUS.

NEW ESCULENT.—The French Academy of Sciences has just received information of a new esculent of the tubercular kind, called Shicams, which grows in the neighbourhood of Cuenza, New Granada. The plant is a shrub which grows to the height of about three feet; its roots engender two different sorts of tubercles—those nearest the surface of the soil are yellowish and bitter, and are only used for the propagation of the plant; the second sort, situated much deeper, are white, juicy, and so sweet that they can be eaten raw. The Shicams will bear cold weather extremely well; and might, therefore, be easily introduced into Europe, where it would be a formidable rival to the Beet-root, since it is an annual and richer in sugar.

EXTRAORDINARY SUDDEN CHANGE OF TEMPERATURE.

I THINK a note of the temperature, as registered by one of Casella's thermometers here (four miles south of Dublin, and a quarter of a mile from the sea, on a moderate hill facing N.E.), may be acceptable to you.

The thermometer is faced due north, thirty yards from any wall, about two feet above the surface of the ground.

The indication registered took place between twelve at night and seven in the morning.

Thursday, December 15th	. . . .	25° Fahr.
Friday, " 16th	. . . .	24° "
Saturday, " 17th	. . . .	23° "
Sunday, " 18th	. . . .	20° "
Monday, " 19th	. . . .	12° "

Last night (19th) at twenty minutes past eleven o'clock, the thermometer marked 12°. The anxious and intelligent gardener went round his house, and on coming out again into the air was struck by the extraordinary change to warmth. He went again to the thermometer, and found that in the twenty minutes which had elapsed it had risen 10°!

The wind rose a little in the course of the night, and towards morning we had some rain; and now we have, all round, no traces of snow, and the ice disappearing fast.

It will be curious and interesting to know if this extraordinary sudden change in temperature extended far, or was general. We have had several greenhouse plants and rare shrubs living out here uninjured the last three winters. I will tell you their fate after this.—CARRIG CATHOL.

[The same very sudden and violent change of temperature was observed and mentioned at the time by the gardener of C. Woolridge, Esq., Winchester.—EDS.]

MEETING OF THE ENTOMOLOGICAL SOCIETY.

THE last meeting of the Entomological Society for the year 1859 was held on the 5th of December; the President, Dr. J. E. Gray, F.R.S., &c., being in the chair.

This, like many of the late meetings of the Society, was so much crowded, that complaints have been formally addressed to the Council to provide larger apartments. This is one of the inconveniences to which the smaller scientific societies of the metropolis are subjected at present, but one which, it is to be hoped, may be remedied when the contemplated arrangements and new buildings at Burlington Gardens are completed. The French Government has, for many years past, given the French Entomological Society a meeting-room at the Hôtel de Ville in Paris; whilst our own Entomological Society (of which the Queen, whilst Princess Victoria, was, together with her mother, Patroness, but of which, on coming to the throne, it was not considered that she could remain at the head, as a matter of court-etiquette, because the Society was not a chartered body), is compelled to look out for apartments in any situation wherever a convenient set of rooms may happen to be found disengaged. It is to be hoped this state of things will not be allowed to remain much longer; although it would certainly be better to put up with the present inconvenience for a short time longer rather than incur the expense of removal, if there be a probability of Government supplying the want.

The donations announced as having been received since the last meeting consisted of the publications of the Zoological Society and the Society of Arts, the beautiful work on farm insects by Mr. Curtis, the continuation of M. Lacordaire's great work on the genera of Coleopterous insects, and that of M. Candeze on the family Elateridæ, with various serials.

Dr. Baly exhibited and described a new and beautiful species of Hispidæ, sent from the island of Batchian by Mr. Wallace.

Mr. Stainton exhibited a very handsome new British Moth, *Margarodes unionalis*, belonging to the family Pyralidæ, remarkable for the brilliant pearly white colour of its wings. It had been taken by Mr. George King near Torquay.

Mr. Faraday exhibited an interesting specimen of the clouded yellow Butterfly, much suffused with dark colour. Taken in the Isle of Wight in September.

Mr. Tegetmeier gave an account of the attempts made during the past year to introduce a new species of Honey Bee, the *Apis Ligustica* of Spinola, into this country from the north of Italy. It is somewhat larger than our common *Apis mellifica*, more brightly coloured, and withstands the cold better than ours; so

that it can collect honey at times when ours is confined to the hive. In other respects the habits of the two species appear to be identical; and the new introductions have been lodged in hives partially occupied by our common species, so that this new species will stand a chance of soon being crossed with *A. mellifica*. Mr. Tegetmeier also exhibited various portions of wax, which showed the remastication of the materials by the Bees which wanted feeding, in a hive that had no room in which to store the honey given to them. In these cases, wherever the cells were detached they were built of a circular shape; but as soon as their sides touched the sides of a neighbouring cell they were made straight.

Dr. Wallace exhibited specimens of the Coquilla Nut, the interior of which had been consumed by the grubs of a Beetle, *Bruchus bactris*, which had subsequently passed through its transformations within the hollow which it had made in the nut. In one nut two grubs were found, which had eaten the two kernels, and which still remained in the larva state. It had been found that the nuts thus infested were worthless to the turner for manufacturing purposes. He also called the attention of Dr. Gray, as head of the Zoological department in the British Museum, to the fact that that very troublesome pest, the *Myrmica domestica*, or House Ant, had established its colonies in the houses in Bedford Place, adjoining the Museum, where it had not only attacked provisions of all kinds as usual, but had destroyed portion of Dr. Wallace's collection of Lepidoptera, some of the fragments of which were exhibited by him.

Various plans for the destruction of this Ant were suggested by different members.

Mr. Stainton read a memoir on the geographical distribution of Butterflies in Great Britain and Ireland as contrasted with those of the Continent of Europe, which led to considerable discussion among the members. Out of 50,000 species of Lepidoptera, not more than 3000 species of Butterflies were known: and of these only 186 inhabit Europe. In our own country we have scarcely 70; whilst there are 94 in Belgium. The peculiar localities of many of the British species were also dwelt upon.

A paper was also read by Mr. Wallace on the habits of the Scolytidæ, or Bark Beetles of the Malayan Archipelago, which he had never found in healthy trees, but only in such as had been recently felled, and were already in their first stage of decay.

TRADE LIST RECEIVED.

Sutton's Spring Catalogue and Amateur's Guide for 1860.—This is really more than its name leads the reader to anticipate. Besides the usual contents of a mere price list, it contains a classified enumeration of Broccolis and Peas, shewing the months in which they come into use. It also contains directions for the culture of the Chinese Yam, the formation of lawns, and growth of annual flowers, concluding with a garden calendar. There is a good engraving of the *Gynarium argenteum* or Pampas Grass. The following is an extract from part of its contents:—

"CARROTS.—An increasingly large breadth is planted year after year, and there are few who regret their cultivation. When judiciously treated, you will get at least as heavy a return per acre as of Swedes; and the value, either for sale or consumption, is far greater. Besides which, they have fewer enemies to contend with; and, if good seed is used, it is in nine cases out of ten the fault of the grower if a full crop is not obtained. We have sold them at £24 per acre on the ground,—the purchaser undertaking the labour of raising and carting them off. These were *Red Altringham*; but for general field culture we prefer the *White Belgian* (imported seed). Of these we have repeatedly grown over twenty-seven tons per acre, and could sell them freely in the field at 30s. per ton. It is well to give plenty of seed (8 lbs. per acre), and sow by the middle of April, in rows fourteen inches apart, with the ground in a moist state, which is preferable to sprouting the seed. A 12-inch early winter furrow, where the soil will stand it, is an excellent preparation, and spring work will thereby be materially lessened. If well-made farmyard dung is not applied, a good crop will generally be insured by an application of artificials similar to that quoted for Mangolds. The weights per acre of the crop just lifted are—

White Belgian (imported seed).....	26½ tons per acre.
Green Top Yellow Belgian.....	23½ "

"PARSNIPS, BEET-ROOT, KOHL RABI.—Pigs do well with the former root: raw for stores, and boiled for fattening pigs. We sow at the same time and treat in the same way as for Carrots, and have obtained some fine roots of the Guernsey variety, fully

thirteen tons weight per acre. The White Silesian Sugar Beet is a free grower, but stock do not care much for it. Crimson Beet, on the other hand, is large, good, and well relished. It might with advantage be more generally grown, especially if the price were lessened. Twenty shillings per acre for seed—and we should not recommend less than 8 lbs.—are a very heavy item. Crop thirty-one tons per acre. The same objection, as to cost of seeding, holds good with Kohl Rabi. Few farmers, in this district at least, have sufficient command of labour to warrant their transplanting a large breadth from a seed-bed; and if drilled the same as Swedes—coming in the room thereof—they require quite as much seed. At Walton Hall, Warwickshire, the intelligent manager, Mr. Cobb, has been in the practice of raising capital crops by the transplanting mode, which saves three-fourths of the seed and obtains the heaviest plants. The weight of Large Green Kohl Rabi, sown on May 16th, we find to be twenty-six tons per acre.

“**POTATOES.**—Few districts in Warwickshire are regarded as suitable for growing any breadth of this esculent. Most farmers grow only for home use, and a whole field, or even a few acres, is, generally speaking, the exception. Hence those large centres of consumption, Birmingham, Coventry, and other towns, are chiefly supplied from greater distances. Their field culture has been small since the breaking out of the disease in 1846; one reason being that the heavy clay soils, and small fields surrounded with hedge-row trees, are ungenial for the produce, either in quantity or quality. Coarse, free-growing sorts, such as the *Farmer's Glory*, are preferred in such situations, while *York Regents* are almost wholly ignored. Nor do *Fluke Kidneys* meet with the favour they deserve, although they have hitherto proved comparatively free from disease. The produce is less in quantity, but quality decidedly superior. We append the acreable results of a crop of the latter variety, which were planted the first week April, and yield a return of fully six and a half tons per acre. Generally speaking, field Potatoes this year run small in size, but disease almost unknown.

CULTURE.		£	s.	d.
Manure, 10 loads at 5s.		2	10	0
Deep ploughing—4 horses and 2 men		0	15	0
Ridging, planting, and summer labour		1	10	0
Seed, 15 cwt. at 80s. per ton		3	0	0
Rent and taxes		2	2	0
Digging and storing		1	10	0
		11	7	0
PRODUCE.				
95 bushels (84 lbs.) at 4s.		19	0	0
60 ditto ditto, second quality, at 2s. 3d.		6	15	0
20 ditto ditto, third ditto, at 1s. 3d.		1	5	0
		27	0	0
Deduct cost of culture, &c.		11	7	0
Profit, &c.		15	13	0

The above is no fictitious arrangement of figures, although the cost of culture would, probably, be differently arranged by other growers. There might be more spring labour charged, but the deep ploughing in early autumn has not at any time rendered this needful in our own case. A single turn of Coleman's cultivator, followed by the harrow and roll, will, in land free from weeds, be sufficient before ridging. And, as regards the produce, it need only be said that the second two lots were sold to a Potato dealer, at the prices named; while the first—equal in quality and size to the best Covent Garden—were entered for the consumption of this establishment at the figure quoted. Many growers might secure a larger acreable return, and we do not adduce the instance as remarkable either way; it represents our usual produce under the ordinary routine of farm management.

“**HOLCUS SACCHARATUS.**—This cannot be regarded as a root crop, but its excellent qualities for summer forage may excuse its being referred to here. The seed we dibbled May 20th on good loamy soil, in rows fourteen inches apart and eight inches between the plants. The braird was long in coming up, and it was nearly two months before it set off growing freely. However, with the warmth of July it flourished luxuriantly, every twenty-four hours showing a visible increase. Commenced cutting in the last week of the month, and then onwards to the end of September. All animals took it readily; but pigs appear to waste it more than either horses or cows. For horses we put it through the chaff-cutter, instead of their usual summer mixture of vetches and straw. They did well with it. They were by this time getting too strong to be cut by the scythe, and the bean-hook was the better instrument. But notwithstanding the

hard and woody appearance of the stems, as the season advanced the sweetness sensibly increased. It is probable that its enthusiastic admirers, such as Mr. J. W. Clarke of Whittlesea, have over-estimated the produce. We have repeatedly weighed portions after being cut for one day, and have found it average 35½ tons per acre when fully grown. It only threw up half-a-dozen seed-stalks to the acre. As a whole, it may be regarded as a very valuable addition for summer growth, especially for late soiling purposes, after the winter Vetches and Clovers are exhausted.”

THE LATE SHOW OF AGRICULTURAL ROOTS AT THE CRYSTAL PALACE.

DURING the great show of fat stock by the Smithfield Club at the Bazaar, Baker Street, a very interesting show of agricultural roots was held at the Crystal Palace. For a first attempt, and got up as it was at a very short notice, it was most successful, and brought together a very fine collection of roots. The *Long Red Mangold Wurtzel*, and the *Yellow Globe Mangold Wurtzel*, were some of the best roots ever exhibited. The first prize of the former was awarded to Mr. W. B. Boxall, one of whose roots, of excellent growth, weighed 28 lbs. The second prize went to Mr. Richard Benyon. The first prize of the *Yellow Globe Mangold* was awarded to Mr. Richard Benyon; and the second prize to Mr. W. Horsburgh. The *Turnips* and *Swedes* were very good; Mr. Robert Farthing, Mr. W. B. Boxall, and Mr. R. Benyon taking the first prizes for Turnips; and Mr. E. Wright, Mr. R. Benyon, and Mr. J. K. Fowler, the first prizes for the Swedes. The *Carrots* were fine specimens, His Grace the Duke of Portland taking the first prize both in *White* and *Red*. His Grace's six roots of *Red* weighed 19 lbs., and measured twenty four inches in length each. The *Kohl Rabi* excited much attention. Colonel North exhibited most excellent specimens in all the four varieties, and obtained four first prizes and two second prizes. Mr. J. H. Clark gaining the second prize for the *Round Purple*. Very good samples of *Potatoes* were also shown. Messrs. James Dickson and Sons, of Chester, had a stand with an excellent collection of Roots, Grasses, and Seeds; and Messrs. Sutton and Sons, of Reading, had a very large collection of roots of excellent quality, in which their *Champion Swedes*, *Elvetham*, *Englefield*, and *Yellow Globe Mangold Wurtzel*, deserve especial notice.

VARIETIES.

HISTORY OF THE OAT.—“Like the other cereals, the early history of the Oat is enveloped in mystery. It has been so long in cultivation, without any distinct records to guide us to its original country, that it still remains unknown. It has been suggested that the cultivated Oat originally came from Persia or Mesopotamia, countries to which we are indebted for so many of our cultivated productions. Indeed, Colonel Chesney, in one of his explorations, met with a variety of Oat growing wild on the banks of the Euphrates, which would go far to strengthen this belief. Dr. Lindley tells us that although this plant (which he describes) differs materially from our common Oat, still it is not inconceivable that it may be either the original state of this kind of corn, or that it may be it in a state of degeneracy, arising from many centuries of neglect. No mention, however, is made of it in the Bible, where we find the other cereals spoken of. It would, therefore, appear doubtful whether it was known to the natives of the East at that early period. This fact, combined with the known hardness of its constitution, leads others to look upon it as a plant more likely of northern origin; for it is cultivable up to the most northern latitude. Yet, in all the countries which have been visited, no trace of its wild prototype has been discovered. Our evidence is certainly very defective with regard to the early history of Oats. None of the Roman agricultural writers mention it; and yet we find in Roman history indications of its cultivation from the story of the Emperor Caligula feeding his favourite horse with gilt Oats served in a golden manger. The wide range of soils that Oats possess, and the comparatively low temperature under which they come to their maturity, have rendered them well adapted to the cultivation of high latitudes, and especially for insular climates. If we draw a line across this country we should find that north of York the Oat thrives better than in the southern half, where the comparative dryness of the air and the higher temperature of the climate render it more suitable for the cultivation of Wheat and

Barley. In Scotland we find Oats cultivated to its northern extremity, lat. 58° 40'. In Sweden they are met with as a crop as far as lat. 63° 30'. In Norway their cultivation is pushed still farther northward to lat. 65°; and in Russia their polar limit corresponds with that of Rye—about 62° 32' N. lat. If we turn southward, we find the climate becoming gradually less and less suited for them. This is well marked within the limits of our own country. South of the parallel of Paris 48° 50' N. lat., we rarely see Oats in cultivation. In Spain and Portugal they are hardly known at all; yet they are cultivated successfully in Bengal, in lat. 25°.* Here, probably, the moisture of the soil compensates for the extreme temperature of the climate, as we find at home that the Oat, when once fairly growing in a suitable soil, will stand a drought better than either of our other cereals. On some of the moist alluvial soils in the southern and western counties, crops of Oats are grown which would compare favourably, both in quantity and quality, with those produced in the more genial climates of the north. Oats are cultivated as a food-grain for both man and cattle. In this country (in its northern portions chiefly) they enter into human consumption to a far greater extent than in any other. In some parts of Germany, especially in the south of Westphalia, the inhabitants of the "Sauerlands" live extensively on oaten bread. In other parts of the Continent, in countries where Wheat is only cultivated to a limited extent, Barley, or more commonly Rye, is preferred to Oats as a bread-corn for daily use. In most countries, however, of the centre and north of Europe, Oats are cultivated as horse-corn; and, indeed, in the hotter climates of the south and in the east, Barley is even preferable for that purpose, as the stimulating effects of Oats on the animal system are increased to an injurious extent by the action of the warmer climate."—(*Our Farm Crops*.)

[Mr. Wilson was decidedly forgetful when he wrote, "None of the Roman agricultural writers mention" the Oat. He would have been correct if he had excepted Columella. This author says—after speaking of the mode of cultivating Barley—"In like manner is the sowing of the Oat, which sown in autumn is partly cut for hay, or fodder, whilst yet green, and partly it is protected for seed." (*Similis satio avenæ, quæ auctumno sata, partim cæditur in fœneum, vel pabulum, dum adhuc viret, partim semini custoditur*.—Columella, l. ii., c. xi.)

Although only that one of the professed Roman agricultural writers mentions the Oat, yet there are others of their authors who specially mention it, though not in commendation of its merits. Virgil, in a line twice written by him, speaks of "Oats, causes of barrenness" (*steriles avenæ*). Buc., v., l. 37—Georg., i., l. 154.)

Again, in the same Georgic, line 226, Virgil says, "The expected crop has disappointed them by yielding barren Oats" (*Expectata seges vanis elusit avenis*), alluding, seemingly, to an opinion entertained by the Romans, and by Theophrastus at a still earlier period, that the Oat is diseased Wheat. Pliny says, "The Oat is the chief deformity of all Wheat, and Barley also degenerates into it; so much so, indeed, that it has superseded Wheat, and the people of Germany sow it and make porridge of it alone." (*Primum omnium frumenti vitium avena est; et hordeum in eam degenerat, sicut ipsa frumenti sit instar: quippe cum Germaniæ populi serant eam, neque aliâ pulte vivant*. Plin. Nat. Hist., l. xviii., c. xvii.)

That one species of the Gramineæ, to which Natural Order all our corn crops belong, will take various forms, according as its culture is varied, can be sustained by many evidences. In very recent days, M. Fabre and others have improved the *Egilops triticoides* by culture until it became Wheat; and Mr. Morton, author of the "Cyclopædia of Agriculture," obtained both Potato and Tartarian Oats, after five or six years' cultivation, from *Avena fatua*, a grass in no high estimation.

As it is possible to create, by cultivation, our corn plants from inferior grasses, so have we evidence that those plants may be transmuted still further.

Gerarde, an irreproachable witness, saw Oats and Wheat growing in the same ear. A gentleman told Dr. Lindley that in Germany Oats sown early, and not allowed to produce ears the first year, were found in the second year to yield other sorts of corn. In 1843 the Marquis of Bristol tried the experiment. Oats were sown, and their stems continually stopped; and in 1844 some produced a slender kind of Barley, a few yielded Wheat, and some still produced Oats. (*Gardeners' Chronicle*. 1844. 555.)

* At the New York Exhibition, 1853, a sheath of Oats was exhibited with other agricultural produce from California, 30° N. lat., which measured 10 feet 3 inches in height, the heads averaging from 22 to 28 inches in length.

In 1800, Dr. Anderson quoted an instance of a Dutchman who cut his Oats while green three times, and that when they were allowed to seed they produced Rye. (*Recreations*, ii., 779.) Similar changes are recorded in 1837 (*Loudon's Magazine of Natural History*); and Dr. Weisenborn, who repeatedly tried the experiment, adds, "Let any one sow the Oats at the latter end of June, and the transformation will certainly occur."

We confess to be of the number who are not surprised by such changes; for we believe that a vast number of plants now considered distinct species are merely one species altered by soil, climate, cross-breeding, and other circumstances. Dr. Lindley has found Orchids, differing as much from each other as Wheat, Barley, and Oats, are all one and the same species. Mr. Morton, already quoted, has raised spring and winter varieties of Tares from that diminutive weed, the Narrow-leaved Vetch (*Vicia angustifolia*); and after a series of sowings we have raised a Strawberry worthy of the table from seed originally obtained from the Wood Strawberry.—Eds. C. G.]

APPLES OF SODOM.—"We made a somewhat singular discovery when travelling among the mountains to the east of the Dead Sea, where the ruins of Ammon, Jerash, and Adjeloun well repay the labour and fatigue encountered in visiting them. It was a remarkably hot and sultry day: we were scrambling up the mountain through a thick jungle of bushes and low trees, when I saw before me a fine Plum-tree loaded with fresh blooming Plums. I cried out to my fellow-traveller, "Now, then, who will arrive first at the Plum-tree?" and as he caught a glimpse of so refreshing an object, we both pressed our horses into a gallop to see who would get the first Plum from the branches. We both arrived at the same moment; and, each snatching at a fine ripe Plum, put it at once into our mouths; when, on biting it, instead of the cool delicious juicy fruit which we expected, our mouths were filled with a dry bitter dust, and we sat under the tree upon our horses sputtering, and hemming, and doing all we could to be relieved of the nauseous taste of this strange fruit. We then perceived, and to my great delight, that we had discovered the famous Apple of the Dead Sea—the existence of which has been doubted and canvassed since the days of Strabo and Pliny, who first described it. Many travellers have given descriptions of other vegetable productions which bear some analogy to the one described by Pliny; but up to this time no one had met with the thing itself, either upon the spot mentioned by the ancient authors, or elsewhere. I brought several of them to England. They are a kind of Gall-nut. I found others afterwards upon the plains of Troy; but there can be no doubt whatever that this is the Apple of Sodom to which Strabo and Pliny referred. Some of those which I brought to England were given to the Linnæan Society, who published an engraving of them, and a description of their vegetable peculiarities, in their "Transactions;" but as they omitted to explain the peculiar interest attached to them in consequence of their having been sought for unsuccessfully for above 1500 years, they excited little attention; though, as the evidence of the truth of what has so long been considered as a vulgar fable, they are fairly to be classed among the most curious productions which have been brought from the Holy Land."—(*Visits to Monasteries in the Levant, by the Hon. Robert Curzon, jun.*)

[This description does not accord with that usually given of what are considered the "Apples of Sodom,"—namely, the fruit of the *Solanum Sodomeum*, or Egg Plant of Sodom. This is a prickly shrub, and could not be mistaken for "a fine Plum tree." The fruit of this *Solanum* is yellow, and about the size of a Walnut. It is very subject to the attacks of an insect, probably a Cynips, which deposits its eggs within the germen. This enlarges into a fruit; and the larvæ of the insect, then emerging from the eggs, feed upon the pulp of the fruit, leaving nothing but an ash-like powder within the entire and unaltered rind. Mandeville, an old traveller in Palestine, speaking of the Dead Sea, says, "And there besyden grown trees that baren fulle faire Apples, and faire of colour to beholden; butte whosoe breakethe them, or cuttethe them in two, he shall finde within them coles and cyndres."—Eds. C. G.]

TO CORRESPONDENTS.

PLANTING VINES IN A CONSERVATORY (*H. B. F.*).—You went to the trouble of making a proper border for your Vines outside. We would prefer them there, and with a box four inches square over the stems after you got the Vine high enough to enter the house. The box could be packed with sawdust or charcoal, or nothing at all if you did not use much heat

inside. The box would then be sufficient protection. You do not give us the size of your house; but if you preferred them inside, a space two feet deep, and three or four feet wide, would suit them; only you must be sure to afford drainage, that the water you give may not stand on the soil and make it a swamp. A little of such material as you mention, with lime rubbish, and some bones, along with fresh brown loam, will form your best compost; and if in a narrow border inside the house, you can give luxuriance by top dressings, and manure waterings. If you put too much of your kiln material, you may have fine-flavoured Grapes at the expense of size. Rich loam will give size of berry; but if there is little or no calcareous matter, we always think there is a deficiency in saccharine flavour. Place the *Muscats* at the warmest end. In fact, if not experienced, we would advise substituting *Royal Muscadine* for the *Muscats*. The *Muscadine* is as hardy as the *Hamburgh*, only requires more heat in setting.

ONOCLEA SENSIBILIS (Inquisitive).—Its specific name is thus accounted for by Morison,—"The fronds are so very tender, that, on being touched or ever so little compressed, they wither and perish."

NAMES AND NUMBER OF PLANTS TO BLOOM IN A CONSERVATORY (A Friend).—Your conservatory is middle-sized. You wish for flowers all the year round. This information has been given in previous volumes, and we would be glad to repeat it to please our friends, and are only waiting to receive certain information as to their circumstances and wishes to make such an article or articles interesting. For instance: What idea can we form of a middle-sized conservatory? What are its dimensions? and what number of plants would fill it? The same as to the good-sized house. How is it heated? Will it bring forward tropical as well as greenhouse plants? Will it force as well as grow? Our friends will not be offended; but some of them write for information just as if we knew as much about their circumstances as they themselves, and, therefore, we are often obliged to guess, and guess wrongly, and not do the good we wish to do. We will take up the matter ere long.

SAXIFRAGA HYPNOIDES.—Mr. C. Jayne may send his address to Mr. D. McCarthy Mahon, Tivoli, Cork.

MOSS ON YOUNG FRUIT TREES (A Constant Subscriber).—When you say your soil is poor, and its subsoil chalk, you at once state the cause of the Moss. We have seen a plantation of young Larches overwhelmed with Moss in a similar situation. You have but one remedy—improving the fertility of the soil, and mulching over the roots of the young trees in summer. Give them liquid manure in summer once or twice a-week.

SOAPSUDS (Amy Flower).—Soapsuds do not promote the breeding of worms, any more than do other enrichers of the soil. Worms always abound most in the place which is richest in decomposing animal or vegetable substances. Lime and salt would be good additions to your peaty soil. Apply them in the spring, sowing them over the surface and digging them in. If you have a trench between each two rows of Cabbage-roots, and pour house sewage into it twice a-week, you will, probably, get rid of club-rooting. Your soil for permanent improvement of its staple probably needs a heavy dressing of clay, or clayey marl.

NAMES OF PLANTS (W. S., Guildford).—1. *Veronica salicifolia*. 2. *Polygala oppositifolia major*. 3. A species of *Callistachys*, uncertain which species. 4. *Agathosma imbricatum*. 5. *Chrozema varia*. (*F. Catt*).—It is *Asplenium septentrionale*. Where was it found? (*S. E.*).—Your conifer is *Juniperus sinensis*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JANUARY 2nd and 3rd, 1860. PAISLEY. Sec., Mr. Wm. Houston, 14, Barr Street. Entries close December 26th.

JANUARY 4th and 5th, 1860. PRESTON AND NORTH LANCASHIRE. Sec., Mr. Henry P. Watson, Old Cock Yard, Preston. Entries close December 17th, 1859.

JANUARY 7th, 1860. BRADFORD. (Single Cock Show.) Secs., Mr. Hardy, Prince of Wales Inn, Bowling Old Lane, and Mr. E. Blackburn, Black Bull Inn, Ive Gate, Bradford.

JANUARY 11th, 1860. DEVIZES AND NORTH WILTS. Sec., Mr. G. Saunders Sainsbury, Rowde, Devizes. Entries close December 24th.

JANUARY 18, 19, 20. LIVERPOOL. Secs., Messrs. G. W. Moss and W. C. Worrall.

JANUARY 31st and FEBRUARY 1st and 2nd. CHESTERFIELD AND SCARSDALE. Hon. Secs., Mr. J. Charlesworth, and Mr. T. P. Wood, jun. Entries close January 11th.

FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). Sec., Mr. W. Houghton. Entries close Jan. 14th.

FEBRUARY 29th, and MARCH 1st, 1860. ULVERSTONE. Sec., Mr. T. Robson.

N.B.—Secretaries will oblige us by sending early copies of their lists.

SUPPLY AND DEMAND.

THERE is a lull in Poultry Shows about Christmas time, and our minds have leisure to think of others; but a periodical knows no satiety: its mouth is ever open, and its cry is always, "Give, give." We played at having a holiday, and did our parts in the office, with the shutters up in the front. We were interrupted, and felt lazy, and dreamily cogitated on poultry. Then we got a little abstruse, and thought of supply and demand—on trade, on our circulation, and of everything connected with THE POULTRY CHRONICLE. Just as the cobbler says, "there is nothing like leather," so we, living among poultry, think few things are more important. We almost think we nodded. We caught ourselves muttering, "Supply and demand, to be sure. Dorkings and Aylesburys." Wide awake, we laughed at the association; but after all it was not so risible.

These birds have obeyed the inevitable law—Dorkings made large prices a few years since. There was demand, this created supply; supply reduced the price, but in revenge caused ten times as many to be sold. Aylesbury Ducks were very cheap a few years since; they were little known, but an acquaintance with their merits has caused a demand—they are dearer. We do not speak of the two or three exceptional pens of either that make fancy prices, but of the mass of both. Dorkings were too dear; they have become cheaper. Aylesbury Ducks were too cheap; they have become dearer. This latter fact will cause an increase in the supply; then they will be worth less, but will settle down like the Dorkings at a fair value—accessible to purchasers, and remunerative to breeders. We are disposed to conclude from this, first, that the valuable properties of the different breeds are becoming better understood; and next, that there is a good sale for such.

There must of necessity be two classes of breeders: one has nearly disappeared, the other has not yet made the progress we expected. The former caught eagerly at every new breed, produced numbers of it as rapidly as possible, and instituted the sales which were so notorious a few years since. They were very profitable; but as soon as they ceased to realise enormous prices they were given up. It is worthy of remark these sales were never attempted with any but Cochins. Nothing but the fact that poultry knowledge was in its infancy can explain them. The Cochin was declared and believed by its admirers to be the *ne plus ultra* of fowls; it was the "Phoenix," the "Black Swan," the *rara avis* of poultry. We have never disputed the good qualities of this breed; on the contrary, we have continually urged them; but the supply of poultry and of eggs must be kept up by the instrumentality of many breeds; and it is the study of this point that has led to the changes in price that we noted at the outset—Dorkings have established their claim to be the breed that makes the largest return in the shape of meat for the food they consume. Aylesbury Ducks stand in the same position. Both fatten easily: hence the demand for them. We have had to note the increase of Spanish at the agricultural meetings. Their laying properties are now admitted, and the size of their eggs gives them the call of the market.

These are important facts. It was a complaint some years ago that although pens of unusual merit found a ready sale at large prices, yet that middling birds were worthless; but we think the owners of such may now be certain of finding a market at fair prices. The best sale for such is at any large Show, or by way of advertisement. Then there remains the sale of birds at any local market in the shape of table poultry. It is true, though not generally believed, that a supply will create a market. Who does not know that in many parts of the country miserable antiquated fowls have been bought, and dignified with the name of chickens till buyers were weary of disappointment in sitting down to uneatable fowls? For this cause they are no longer asked for; but if it were once known that good fowls were to be had, there would be no lack of purchasers. One of the symptoms of progress in the poultry pursuit should be, that good fowls should be attainable at all times and everywhere. This can be accomplished by those who often complain they have no market for their surplus stock, and they will find it pleasant and profitable.

CROSS-BREEDING

BETWEEN WHITE AND BLACK SPANISH FOWLS AND COCHIN CHINAS.

I HAVE been a breeder of White Spanish for some years, and I find them better layers than the Black. Even in winter they continue laying. Mine have begun to lay again since they have moulted.

Four or five years ago I put a White Spanish hen with a Black Spanish cock, but the result was very different from Mr. Hartley's, for I had no blue chickens. I had two white chickens, and all the others were perfectly black.

This year I put a white hen with a black cock, and the chickens were all black. I also put a black hen with a white cock, and the chickens were all perfectly black.

Now I am writing, I will give the results I have had with other crossing. Three years ago I put a Buff Cochin-China cock with a common four-clawed white hen, and the chickens were all of them like the cock, Buff Cochins.

Last year I put the same hen with a Grey Dorking cock, and the chickens were all white, some of them with four claws, and some with five.—H. HUTSON.

MR. ARCHER'S SILVER-PENCILLED HAMBURGHES.

MR. E. ARCHER, of Malvern, has sold the whole of his celebrated stud of Silver-pencilled Hamburg fowls to W. H. Kerr, Esq., and Mr. Geo. Griffiths, of Worcester.

I should mention that they will be exhibited at Preston and Liverpool by Mr. Archer, he having entered them previous to the sale taking place.—G. GRIFFITHS.

ANDALUSIANS.

IN No. 582 some questions are asked respecting Andalusians, and in the footnote some surprise is evidenced at the curious production of blue birds from the mixture of white and black ones. I think it is in my power, as an old breeder of (what we in Devon call) Minorca fowls, to enlighten the questioner respecting this breed.

By Minorcas is invariably meant birds without any white in the face, only the earlobe being so, and, of course, very round and Hamburg-like. We never had the slightest stain on the faces of either the blue, white, or black till within these dozen years, except in isolated places, and the presence of it was never thought anything else but a fault. Well, to the point, as to the mode of producing the whites and blues. The black Minorca will often sport a white chick, and a blue one also, however carefully bred; but some never do, and I must confess that I have had misgivings of those that do, because a white bird of any breed will be sure, with a black hen, to throw some very light birds. I have known a White, single-combed Dorking cock produce, with a black Minorca hen, the most perfect blue hens ever seen, with most marvellous combs.

The common plan of breeding the blues in this county, where they are numerous, is to mate the white and black, as Mr. Hartley has done. This mode of producing blue fowls is not at all uncommon—*vide* what was said in THE COTTAGE GARDENER, No. 581, page 105, on "Duckwing Game." Blue Bantams are spoken of as sports of white and black.

With regard to the present manufacture of Andalusians, I am at no loss to satisfy your correspondent, and, should he wish it, my address is at your office.

To show your readers how startled I was at the Taunton Show some four years since, on exhibiting the best pen of Blue Minorcas I ever saw, to find the prizes given to very mediocre white-faced birds, I made a great stir at what was considered a dishonest judgment; and on ventilating the subject it was found that nobody knew anything about this breed. It is very curious to look back and see the discrepancies, *vide* "Letter Box," December, 1857, page 172, "Some white in the face." *Vide* July 13th, 1858, page 231, "No white face." *Vide* my reply, July 20th, of the same year, page 249, which is, without writing any more, as good a reply as I can give to the inquiries of Mr. H.—W. H., *Exeter*.

P.S.—In reply to an inquirer after "White Spanish," they are to be had in this neighbourhood. All the prize birds, I believe, without any exception, have been bred within seven miles of my house.

ARTIFICIAL SWARMS.

SINCE Schirach's discovery of working bees and queens being of the same sex, and that on the accidental loss of a queen the bees can rear another by merely enlarging a cell in which there is a worker's grub, to allow more room for the growth of the insect, apiarians have been led to make artificial swarms by removing part of the bees from the stocks to hives containing bits of brood combs, to enable them to rear queens, and thus begin fresh colonies; but, as I mentioned in my last paper, the plan can only be successful at the time when drones are plentiful. I paid some attention to this curious part of the history of these insects some years back, especially after reading the Rev. E. Scudamore's little treatise on making artificial swarms. He speaks, however, more strongly on the plan of forcing bees with their queens from the stocks into empty hives than the other just noticed. For instance: At page 35 he says, "It is usual when bees have swarmed naturally, to expect a second swarm about the ninth or eleventh day after. The same length of time, or rather longer time, may be allowed to pass by before one attempts to make the second swarm artificially. The stock may be ready for that purpose even earlier than this; but there are reasons why it is better to delay this second operation till about the fourteenth or sixteenth

day after, or even a day or two later, if the weather be suitable." This is not sufficiently explained: but the reason of the delay is to give more time for the brood to be hatched in the stocks. But before this, most probably, the bees would have swarmed twice in the natural way, and have added but little to the store of the stock since they began swarming. Therefore, though the writer states that "this is the proper time to take possession of the whole contents of the hive," meaning after the bees were forced out of it—perhaps the honey in the old combs would hardly fetch 8d. per lb., while that from fresh swarms managed in the usual way fetched double that sum: besides, if the season is bad, the bees deprived of both their stock of pollen and honey could not collect enough stores for winter. But supposing it otherwise, still Mr. S.'s plan is not so good as the cottagers' of *drumming* the bees into an empty hive, to be replaced after a part of their store is taken. I may have spoken of this favourite plan of bee-keepers in heath districts before, but may not have mentioned that it is somewhat like the Greek method—I mean the bar-hive of which Huish speaks so highly and professes to have invented; but I have heard that he only improved what he borrowed from an old writer. However, in the first place the combs are cut out by turning up the hive: in the other they are attached to bars at the top of it.

With regard to making artificial swarms. After the experience of years I see no reason to modify my remarks on this subject in Morton's "Encyclopædia of Agriculture," published in 1848. Under the head of "Bee," page 213, I state that "artificial colonies may be made without queens by merely putting a part of the bees into a hive in which there is a bit of comb containing workers' eggs, confining them for a day. From one of these they rear a perfect female, or queen, by widening and lengthening the cell to complete the growth of the insect, whose cell is not inverted but in the same position as those of the workers." Some recommend this plan when bees cluster and lie idle outside the hive, especially before the first swarm. Such experiments, however, are but hazardous, and at best only make weak colonies. But the question is, What is gained by premature separation? If done in bad weather there is, perhaps, an injury; for what use are bees in an empty hive at such a time? If the weather were good a few days might be sometimes gained; but when the unnatural disturbance of the time and the uncertainty of success are taken into consideration, we think the scheme is best let alone. Indeed the practical bee-keeper has more reason to complain of the propensity of bees to increase colonies, which prevail so powerfully that a strong stock will sometimes throw off four or five swarms; while the first of these may cast off two also during the season; and we have known an instance of the original head bee of a hive having established three in one season.—J. WIGHTON.

OUR LETTER BOX.

FOOD GIVEN TO POULTRY.—Would it not, think you, be desirable that exhibitors of poultry at shows, should (as is done in the case of cattle), be required to state what different kinds of food have been used, for the purpose both of instructing the ignorant how great size in poultry may be attained, as well as of checking the practice of using unnatural and extravagant food, such as beef, &c., which the Judges, one would think, would discountenance as much as possible?—G. M.

DETECTING THE SEX IN EGGS (*Investigator*).—We never yet met with any one who could foretell what sex the chicken would be that was to be produced by an egg; yet the opinion that it could be so foretold is as old as the days of Horace. He says in his Satires, *Lib. ii., Sat. iv.*

"Longa quibus facies ovis erit, illa memento,
Ut succi melioris, et ut magis alma rotundis,
Ponere: namque marem cohibent callosa vitellum."

That is, "When you would feast on Eggs, select the long ones; they are whiter, sweeter, and more nourishing than the round, and would produce cocks."

Francis, in giving the translation in verse, writes thus—

"Long be your eggs, far sweeter than the round,
Cock-eggs they are, more nourishing and sound."

To show how poets as well as doctors differ, he adds in a note. "This precept is contradicted by experience. The round are male eggs, and their shell is harder than that of the long."

ERRATUM.—In last week's paper on the "Old and New Year," for "throwes" read "throes."

APIARY NEAR LONDON (*A Hertfordshire Bee-keeper*).—If you inquire of some of the dealers in honey they will, perhaps, be able to inform you where you can get the information you require. You can obtain "Bee-keeping for the Many" by calling at our office, 162, Fleet Street.

REMOVING BEES (*Ieno*).—Suspended in a box as you suggest, with the bottom of the hive closed, it might be removed to any distance by rail. A child playing in front of a hive would be liable to be stung; but merely passing in front of the hive will not irritate the bees. You may bring home the stock now, or at any time; but if you wait until early spring, about March, you will be sure then of the bees having survived the winter.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JANUARY 10—16, 1860.	WEATHER NEAR LONDON IN 1859.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
10	Tu	Veronica agrestis.	30.695—30.567	45—30	S.W.	—	6 af 8	10 af 4	58 6	17	7 37	10
11	W	Crocus vernus.	30.484—30.422	47—42	W.	—	5 8	11 4	29 8	18	8 1	11
12	Th	Viola tricolor.	30.426—30.366	48—31	W.	—	5 8	12 4	55 9	19	8 25	12
13	F	Lonicer periclymenum.	30.443—30.413	42—32	W.	—	4 8	14 4	20 11	20	8 48	13
14	S	Corylus avellana.	30.418—30.332	41—26	N.	—	3 8	15 4	morn.	21	9 10	14
15	SUN	2 SUNDAY AFTER EPIPHANY.	30.309—30.202	39—22	S.W.	—	2 8	17 4	42 0	22	9 32	15
16	M	Ranunculus repens.	30.154—30.036	42—26	S.W.	—	1 8	18 4	5 2	23	9 53	16

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 42° and 30.7°, respectively. The greatest heat, 56°, occurred on the 15th, in 1852; and the lowest cold, 4°, on the 14th, in 1838. During the period 120 days were fine, and on 111 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE plants will now require particular attention and a nice discrimination in the application of water: it may be comprehended by all persons interested in gardening operations, that when the soil on the surface of the pot looks damp it will not require water until it gets thoroughly dry at this season, and then it is to be given before the plant droops or flags for want of it. But when the plant droops and the soil on the surface appears damp, the cause is then to be discovered by turning the ball out of the pot, when it will be seen whether the whole or only a portion of the soil is wet; as it sometimes happens, when fresh potted with light soil, it shrinks from the sides of the pot when dry, and when water is given it runs down and moistens the outside, without penetrating the ball. The evil is corrected by holding it for a short space of time in a tub of water of the same temperature as the house. If the soil of any plant is sodden with water it should be turned out of the pot, and the drainage examined, and no water to be given until it becomes thoroughly dry.

VERBENAS.—They require to be kept tolerably dry, as they are more susceptible of injury from damp than from cold; a top shelf near the glass in the greenhouse is a very suitable place for them. If mildew appears, to be dusted with flowers of sulphur.

STOVE AND ORCHID-HOUSE.

Although all plants now at rest should be kept comparatively dry, they will require to be looked over daily to see that they do not suffer for want of water. The temperature not to exceed 60° by fire heat, and a fall of 10° may be allowed at night in very cold weather. Many of the stove plants—such as Aphelandras, Justicias, Poinsettias, &c.—may now be cut down altogether, and kept dry for a few weeks, which will cause them to make an early growth, and to come into flower a few weeks sooner next winter.

GESNERAS.—Select a few roots of them and a few of the Gloxinias to start into growth to produce a succession of flowers.

FORCING-HOUSES.

ASPARAGUS.—If the soil in the bed is dry, give it a liberal supply of water, so that it may descend to the roots, as unproductiveness is sometimes caused by the soil at the roots being very dry when the top is kept moist by gentle waterings.

BEANS (Dwarf Kidney).—Sow every three weeks, if a constant supply is wanted. Keep the early crops well supplied with water, and give them frequent sprinklings overhead, to prevent the attacks of red spider.

MUSHROOMS.—An abundance of water to be thrown about the floors. If the beds are dry, to be syringed with lukewarm water, applying it like dew at intervals for a few hours. Temperature from 50° to 60°, with air occasionally in favourable weather.

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PEACHES.—Continue previous directions. The trees in bloom to be artificially impregnated, and the fore-right shoots to be rubbed off a few at a time before they become too large. Currents of air to be carefully avoided, especially when the trees are in bloom, as they have been sometimes observed to sustain injury from the two end doors being left open for a short time. Air to be given at the top daily in favourable weather.

PINES.—As the days lengthen and the light increases the plants that are swelling their fruit should be supplied with a gradual increase of heat (from 65° at night to 75° or 80° in the middle of the day in clear weather), water, and atmospheric moisture; while others that are in bloom and starting into fruit require more air or more moderate temperature, care in watering and less atmospheric humidity. Some of the strongest succession plants that are grown in pots to receive their final shift, that they may make their growth for fruiting in May or June. In old-fashioned pits or houses, where the flues run near the tan-bed, the plants should be closely examined, as they are apt to be injured by fire heat in such a situation.

STRAWBERRIES.—A few dozens more pots may be placed in a frame where there is a gentle heat and an atmosphere more congenial to their healthy growth than in a house.

VINES.—When they have made shoots two or three inches long, the night temperature to range from 60° to 65°, with an increase of from 5° to 10° during the day.

PITS AND FRAMES.

Keep the plants in these structures as hardy as possible by fully exposing them in mild weather, but do not give any more water than is absolutely necessary. Remove all decayed and decaying leaves, and keep the atmosphere in as healthy a state as possible.

Make small hotbeds for sowing Cucumbers and Melons, Radishes and *Early Horn* Carrots, Cauliflower and *Walcheren* Broccoli, Lettuce, and various other things, which will be found useful where the late severe weather, or other cause, may have diminished the autumn sowings.

WILLIAM KEANE.

IMPORTANCE OF NIGHT AS WELL AS DAY EXPOSURE—HEATING *versus* COVERING.

THE registering thermometer stood, in my garden, at 50° soon after ten o'clock at night on the first evening of the new year, and that determined the choice of leaving out of doors, on open shelves, some of my very choicest plants or new kinds of seedling Geraniums. The same plants were left in the open air under a south wall, or rather against a south wall, on shelves, on the second and third nights of 1860, and they will remain out every night that is dry all this winter, and that the thermometer is not under 40° at bedtime—say, at about ten o'clock. The same practice I have now pursued for the last four winters; but from having kept no register of the ins and outs, all I can call from memory is, that on Christmas night, 1858—that is, last Christmas twelvemonths, my best breeders were out in the

open air two or three nights running, and these plants were to me the most valuable of all the plants in the three kingdoms. Most of these best breeders were in their flowering-pots six weeks or so before Christmas, and a few of them had to get their last shift at the beginning of February. I never breed in May from a Geranium that has been potted later than the previous February.

The meaning of these two ways is to follow natural ways as much as possible under the circumstances of my "condition in life," or rather the unnatural conditions to which all our Geraniums are necessarily exposed the year round; to have a plant fully established at the roots at the time of crossing it, or breeding from it, and that establishment at the roots to be brought about as naturally as the climate will allow. In my little conservatory, the sudden and sometimes extraordinarily sudden changes in the winter, tell very much for or against my breeders; but a very mild turn from a very sharp cold is more injurious to them than a sudden severe frost after a run of clear or cloudy mild weather. Hence the reasons for my turning out of doors some few of my best breeders whenever a day offers the opportunity for doing so, and for leaving them out all night when there are no signs of frost. But all that care is thought to be not so necessary after the pots are quite full of the roots, be that in February, in March, or later.

When the pots get full of healthy roots, under this more natural system than that generally pursued with bloomer beauties, the plants may be again treated quite the contrary to that for flowering plants—that is, plants grown solely for their blossoms. The greatest contrast between two plants, or two sets of plants, is when a Pelargonium is forced to bloom at this time of the year, and another Pelargonium is turned out of doors at night, in order to keep it more cool during the time it is making its yearly complement of young sucking roots under artificial conditions, so that the conditions be as free from force or forcing as possible, and so be the nearest to natural conditions. Now, and in all times to come, I hold it to be true to Nature and to kindred; or, at any rate, much more natural to do bedding plants in winter as I do my breeders than in the ways they are more generally managed.

Of course, I could not turn a hundred, or a thousand, plants out of doors of a morning and return them at night as I do a dozen or a score of pots, and, of necessity, I do not contemplate that amount of labour; but every night that I leave those breeders out of doors, I would be free and fearless in leaving off all the glass lights of any frame or pit in which I kept the bedders, and unless it were to rain, or the wind to be very high, I hold it to be true philosophy, and sustained by practice, that a full free exposure of a frame full of bedding plants for one whole winter night is, or would be, as good to them as the best way of ventilation could be in three entire days running. Indeed, so near do the managements for bedders and for breeders approach each other, that one-half of all our bedders might be in their final pots, or potting, six weeks before Christmas, and the other half before the end of February. Then there would be no shade of difference in the management of bedders and breeders, and the bedding-out system would cause no blank in the flower garden at the end of May, for all the plants would be in bloom, or just coming into bloom, by the time it was safe to trust them out for good. The worst of it is the expense; and through the cost, the impossibility of finding shelter under glass for so many plants, if each plant had sufficient room at the roots to hold on till blooming and planting-out time. But that is no reason why the opportunity for treating bedders as nearly as possible like the first and fairest breeders should not be adopted as much and as often as possible when we have the chance, and that is when we have them in frames, or pits, from which the lights can be drawn off entirely for whole days in succession, and for some nights occasionally.

There is nothing speculative in this, if you understand my meaning, which is, in the clearest and shortest

way I can write, a simple one-light box full of bedding stuff. Take the glass or "light" entirely off that box from "teatime" till bedtime at this season of the year—or say, give the plants five hours of night exposure to the free open air by taking off the glass entirely, and it will do them as much good as fifty hours of day *ventilation*, supposing you tilted back and front of the glass alike. One half of all the new amateurs I ever yet came in contact with were wholly wrong in their ideas of ventilation during the winter. But I am as free to confess that we gardeners were, in a greater proportion, not altogether really ignorant of the fact, but numbers of us were quite careless about it. But for the last few years my breeders have turned out so valuable, that I have found it worth while to turn my utmost attention to the very inmost of their ways; and I have tested practices with them that I should never think of studying at all under the common run of everyday life.

For bedding plants, therefore, which are free from frost-bites, and are well established in pots, or are otherwise safe at the roots from being planted out of pots in the bottom of the pit, no mode of ventilation is one-half so good as that of drawing off the glasses entirely for so many hours each fine day, or as long of an evening as it is safe from frost, or too much rain, to do so. But when the case is one as too many are this winter, when plants have been more or less damaged by early frost, and are given to damp and moulding, the ventilation is better for them in a current by tilting the back and front of the lights in the daytime, and by back air at night, or as long on in the evening as it is thought safe to leave air on. It is a dangerous plan, with plants in that condition, to adopt the same plan with them in cold pits during the winter which we make use of in summer for gaining extra heat during the night—that is, by shutting up the glass early in the afternoon of fine days, in order to confine and keep the heat received in the afternoon to help to keep the pit and plants warmer during the night. Nothing is more fatal to injured plants than that practice, although, on the face of it, the advantage would seem great. The effect of closing-in afternoon heat in cold damp pits or frames in winter is to raise a muggy vapour among the plants all night; the very worst condition for frost-bitten plants to be in that I can think of. Even when the plants are in the best health, and free from all damp and decay, it is a most injudicious mode to attempt to make use of the afternoon heat by shutting up the lights early in the dead of winter; for of all modes of inducing growth, or for forcing a new growth, save that of bottom heat, this of closing early in the afternoon is the one to which all kinds of plants will yield the readiest, and soft-wooded plants, like our bedding stuff, more easily than woody plants. Therefore, if your head is not swimming with older notions, which are difficult to be got rid of by one advertisement, take to this principle, or ancient law of vegetable life, and never shut up the glass till dusk over bedding plants to the very end of February. From the day you "house" them in the autumn, always make use of *full exposure in fine weather* rather than ventilating, if your plants are in a fair condition of health and roots, and never miss to let them have as much of the night air as the state of the weather-glass will indicate to be perfectly safe. Dry and cold is the true principle of repose for them; warm and muggy is the reverse.

A long confinement under a glass screen, though a current of air may, or might pass under it, and over the leaves all the time, is certain, in the long run, to make these leaves and the young shoots too tender to bear the full sun of a fine day in early spring without drooping. Therefore, harden them from the very first by as much exposure as the weather will permit; and, as I said before, no kind of giving air will expose them half so much as taking off the glass or screen. Under this system you will find that the hottest day in March will not affect them so much as the mildest day in January—I mean it will not set them growing faster. What growth they will make under the exposed system, night and day, whenever it is safe, will be lawful

or natural to them, and far better for us and for our purposes than the one-half of us are at all aware of yet.

In addition to my own four winters' experience with my best breeders, I have had the two modes fully before my eyes the whole of this present winter, and I am in it, and as much interested in it, as any one who reads this. All the bedding plants at the Experimental Garden, without a single exception, were up and potted and pretty well rooted in the new soil before the frost came, as one of our Editors can testify, having seen them before the awful change. That was because the family were then down at the seaside for a couple of months. Many of our London readers, and of our other large cities' subscribers, are also off at that season, leaving orders at home to have the bedding plants in in time. Little did the gardeners of Inverness, of Inverlochy, of Dingwell, of Lochcaron, or even his Lordship of MacDonald in the Isle of Skye, know there were gardeners among them at that time who could tell and teach them every turn and move in the Waltonian propagation to the last leaf and bud; but so it was, and all their plants, too, are as safe as if they had only been down at the seaside, or over in France and Germany, or down one steep, and up another, like the Cyclamens on the Alps and Apennines. While we and ours, who remained at house and home, got into all this mess, and loss, and vexation of spirit, by letting the frost have the flower of our stocks, leaving us but stumps, bare bones, and blisters to house, keep, tend, and manage, as best we may, the whole blessed winter, the two sides being just now as familiar to me as THE COTTAGE GARDENER itself. In all my experience I never saw such well-to-do plants as the bedding plants look now at the Experimental Garden. No trouble, no care, and no bother at all with them; and the glasses are off at every *fresh* turn of the weather-glass, as I am just aiming at, from seeing them do so much better that way.

Here at home, in the minimum conservatory of your humble servant, are two thousand seedlings of the first-water strains, looking as free and fresh as any other young Christmas parties of the same high blood and spirit. There are my breeders, all in a heap, out on the benches, sunning themselves while they may, and getting under cover no more or oftener than is just necessary for their health and comfort. But my new pit under a west wall, which is over fifty feet of measure, is full from end to end of care and anxiety, of treasures and of trials, of good luck and of bad luck—a source of great pleasure, and of stiff sterling trouble. Go to it any time, morning, noon, or night, and there is something wants looking to. There are no means yet of keeping out the frost but by coverings. The thermometer has been down once already to 10°, showing 22° of frost, and that much has been guarded against by an equivalent to four runs of good new mats. I am thus prepared to prove, from practice, that a flue or hot-water pipes are less costly to keep bedding plants than coverings, where all is to be done with mats; but with straw, stubble, or fern the cheapest way is covering. Mats alone make the dearest protection we can use; and, use them with all the care it is possible to bestow, they are of little use the second season. I should need four dozen mats yearly to cover this pit; and at the lowest figure, and discount for ready money, one can hardly expect them, one year with another, lower than 18s. a dozen. With a hot-water apparatus I could manage with a dozen mats every two years. A dozen would once cover the whole pit, and with hot water they could be kept dry, and only used on severe nights and hard runs of frost. Therefore, I could contrive to make them last two seasons, or buy but six new ones every year. But with the price of eight dozen mats, the consumption of two years, I could get in pipes to last out my lifetime, and the coals would be no more than my time in covering and looking after the mats. And there is another consideration.

There are thousands of gardens which are not larger than my private garden; and if I had the run of ever so much stubble or fern, the litter they would make in such small

compass, and the bother to keep things tidy with them, would outweigh all considerations about a few more or less shillings or pounds in the yearly amount, and I should prefer hot water in ordinary pits and glazed six-inch pipes for flues in wider pits. My conservatory is heated by a copper boiler of small capacity; but my principal defence is from the six-inch glazed pipes, which carry the smoke across the whole length of the back wall, rising gradually as it goes till it reaches the farthest corner, then straight upwards. This flue has kept itself clean these seven years; and the pipe next the boiler is, sometimes, nearly red hot, and is yet not the worse for it. If the house is too hot or too dry, all there is to do is to lift off the lid of the boiler—the water never requires to be so hot as to make the smoke or vapour from it hurtful to the smallest seedling, and I have nothing but pleasure in doing anything for the plants.

It often occurs to me how easily a combination of flue and hot water could thus be had for the very smallest greenhouse and how much better it would answer for most instances, than either hot water or a flue separately. A fine open day, and the appearances of a sharp frosty night, you make a fire to heat all the water, or a strong brick flue; and when all is done, the evening or night turns out differently, your labour and cost went for little, and before the sun is up next day you may see occasion to repeat the tune, or dance out your fears without a tune. With these glazed pipes straight along, or down under the pathway, and up again immediately on the level, or on the slant—and it is all the same—the tune would be short and sweet. They heat as fast as iron, and cool as fast; but place a small, open boiler of iron, copper, or tin over the fire, and run two hot-water pipes from it as far as there is a straight line, and no further. If the straight line is short, let the pipes be four-inch ones like mine; if moderately long, three-inch ones may do; and if of considerable length, two-inch pipes may suffice; but have no bends or elbows, except the one bend to unite the farthest ends of the pipes, and you have the best means known to

D. BEATON.

DEUTZIA GRACILIS PRUNING.

I AM about putting some in a mild bottom heat. What style of pruning do they require?—H. L.

[It is now eight months too late, or four months too early, to think of pruning any *Deutzia* whatever, and *gracilis* more particularly. It is the same with all their kindred: when under cultivation for forcing, or in pots, to be brought under glass early in the spring, so as to flower sooner than out of doors without forcing—the same way as Mr. Rivers does with fruit trees in his orchard-houses. *Philadelphus Mexicanus* might be brought in a few years to the same standard, or condition, for forcing and flowering as *Deutzia gracilis*, if people would only treat them the right way. Any way, or any season of the year, they may be pruned, cut, and carved according to fancy out in the borders of the shrubberies: but for pot work every one of the kinds of *Philadelphus*, of *Deutzia*, and of *Decumaria* must be pruned at the same time as *Camellias*, and *India* and *China Azaleas*; and no shoot of a *Camellia*, or of these *Azaleas*, or of this family to the fourth and fifth generation, must ever be stopped during the summer. When a man goes to prune a pot *Deutzia* he ought to have a *Camellia*-bloom in his buttonhole to remind him that *Deutzias* in pots and *Camellias* anywhere require exactly the same kind and quantity of pruning, and the same time to do the work. That being so, what would you think of a gardener who would talk about pruning his *Camellias*, or his *Azaleas*, or his yellow *Cytisuses*, and the “likes o’ them,” just at the turn of the new year? These *Deutzias* are like them, and *gracilis* more particularly than any other. Therefore it must never be pruned in winter or in early spring; and for this reason—that, no matter where you put in the knife, you must cut away a part of the very parts which are going to bloom. The reason for not stopping young shoots is, that they of one season will bloom the next from top to bottom. All the race to which *Deutzias* belong should be pruned exactly like *Black Currants*, just at the moment they have done blooming, except *Deutzia gracilis* and *Philadelphus Mexicanus*; and these two do ten times better to

be pruned very nearly like Raspberries—the old wood cut out after blooming, and to encourage a vigorous summer growth to flower next season, and then to be cut down, start again stronger than ever, and bloom far better; cut again, and come it again and again, till your plants are like our own one plant, now nine years old in the roots and only nine months in the shoots.]

HINTS SMALL BUT SEASONABLE.

CHINESE PRIMULA.

"OUR plants are damping at the collars, leaves withering, and blooms pale and poor. What is the reason?" Chinese Primulas require good drainage and careful watering in such weather as we have had lately. Everything like damp and decay should be removed with a sharp knife from the collar or stem; and then, when the cut parts are dry, surround the places with powdered charcoal and peat earth, or very dry loam, forming a little cone, so as not to be easily wetted. In watering place a potsherd on the side of the pot, and pour the water on it until all the soil is moistened except the cone in the centre, and then wait patiently until your services are again required. The colour of the flower is not so good, generally, when the plants are in large, as when in smaller pots. What are called 48's and 32's are quite large enough for the general supply. Plants sown early in spring may have large pots to form large specimens; but they require more care in winter. The chief point, however, to secure fine bloom and fine colour, is to keep the plants in an airy position, and as close to the glass as possible, without the leaves touching the glass. To grow these plants, a temperature of from 37° to 45° will do, and the pots should stand, in dull weather especially, on boards. To bloom them well at this season, a temperature is required ranging from 40° to 48°, or even a few degrees more in fine weather.

DOUBLE CHINESE PRIMULAS DAMPING.

These even require more care; and if the bloom is wanted to continue long, some of the flower-trusses should be thinned. To thrive well in winter and spring, the temperature should be from 45° to 50° at the least, and not a drop of water should ever be allowed to rest, or even to drop on the centre of the plant. If plunged in anything for any length of time in muggy weather, the plant is almost sure to damp off and decay at the collar. In fine, clear weather, if the flowers are well up, the plants will like a little clear manure water; but in dull weather little or no water will be wanted, and the plants will generally do best in a dryish atmosphere, airy, and when, in addition to a dry shelf below them, they stand elevated above other things on an inverted pot. The general management and propagation have been repeatedly given.

EPACRISES DROPPING THEIR FLOWERS, AND THEIR WOOD SHRIVELLING.

It is said the surface of the soil is moist enough, and does not seem to require watering. Give the pots a good ring with your knuckles: if the sound be sharp and clear, rest assured the soil and the general mass of roots are dry. If the sound emitted be dull and heavy, most likely the soil is too wet, and that and the dull weather may have rendered the plants unhealthy. I think it is more likely that the surface soil for an inch or so is moist, and the roots below in a very dry state. The frosty weather we lately had, the clear sunshine, and the keen dry air would dry up the moisture in the soil very fast. If enough water were given merely to moisten the surface, and that repeated time after time, it would be very easy for the waterer to deceive himself and injure the plants. Turn out a plant or two carefully and thus thoroughly satisfy yourself. Some beginners will not be satisfied nor convinced until this is done. They feel so sure it cannot be dryness, and can hardly believe their eyes when you present them with a ball three parts of which are as dry as dry can be. More plants in pots are destroyed by this cause than by all others put together, and the mischief goes on unsuspected until the recovery is hopeless. All fine-fibred plants growing in heath soil are most liable to be ill-treated in this way. If this is the matter with your plants, the best plan would be to get sufficient water in a tub, heated from 50° to 60°, and set the pots in it over their brim, and allow them to remain until the air-bubbles cease to escape—say, five minutes or so. Then take them out, allow the pots to drain, and then place them on the shelves, and keep a little shaded from bright sun for a day or two. No mere

watering without puddling the house, would be sufficient; because, under such circumstances, and where heath soil is chiefly used, the water merely poured on the surface will escape by the sides of the pot without thoroughly penetrating the ball. When once thus thoroughly moistened, there will be no difficulty in future waterings, unless the same carelessness and mere surface moistening be again manifested. Frost will cause results such as those alluded to; but if the house, as you say, were never below 35°, there could be no danger at that temperature, though, when the plants are in bloom, 5° higher would be better.

STOPPING AND REPOTTING PELARGONIUMS.

"These are in 32-pots, well rooted, leaves rather small, shoots plentiful enough, wanted to bloom in May and June. Should I stop the shoots and repot?" If the shoots are at all numerous—enough to make a nice head when spread out—we should stop none. If on a plant there is any one shoot that has double the strength of the rest, that should be stopped back so as to produce two shoots or so that will be as strong as the rest; and in such a case the new shoots will generally be about as strong and as early in bloom as the weaker ones not stopped. When a plant has several shoots stronger than the general number, and it is desirable to equalise the strength, these should be stopped at once, and thinned out afterwards to the requisite number of shoots; but it would not be advisable to repot such until the new shoots from the stopped parts were advancing kindly. Such plants would form a second succession. A third succession might be formed of these stopped a month hence and repotted in February. But keeping at present to those nice regular plants in 32-pots, and which are two or three years old. The chief attention they will require will be removing any very small shoots, unhealthy leaves, and even any large leaves likely to overshadow or hang over the others. All such plants may then at once be transferred into 16-pots, well drained, using well-aired sandy loam, rather dry than wet, and packed tightly round the ball after part of the old drainage had been removed, and the fibres round the sides disengaged with the fingers or a sharp-pointed stick used carefully. When set on the stage, water so as to settle the whole with water at a temperature of from 65° to 70°. Keep the house not lower than 50° for a week, with a rise of 10° or 15° from sunshine until the roots are working in the fresh soil; when, in cold weather, the heat may fall to 45° at night, but seldom lower.

If you want fine healthy specimens, you must not set your pots on earth, ashes, moss, or anything that will retain moisture to any extent, but on wood, stone, or slate; and did we have a preference, it would be for wood, on account of its nonconducting-of-heat properties. If plants are set upon a moist bottom, ashes, or earth, &c., when the house is shut, moist unhealthy vapours are more apt to rise, which, when condensed upon, are apt to disfigure and disease the foliage. The plants will also do better in a lean-to house with front lights than in a pit with light merely above them. They will do better still in a span-roofed house, with light all round them. In both cases when grown in houses there is a large space of air below the plants as well as above them; and when the sun shines especially that air is kept in constant motion; and if the plants are not placed too thickly, the light will play on the lower branches nearly as well as upon the top ones. Provided there is nothing between such plants and the glass, and heat given so as to admit a pretty free current of air in fine weather, there is no necessity for keeping the plants so close to the glass as used to be recommended. We have seen them three feet and even more from the glass, and very bushy and compact. In houses formed with earth stages we would elevate all our favourite specimens of this tribe on bricks or pots. Such simple compost as has been referred to will produce sturdy shoots, with smallish instead of extra large foliage. When the shoots knot for bloom, then, and not before, is the time for rich surface dressings or manure waterings. In watering avoid wetting the main stem. Be careful that the sun never shines on the leaves when wet.

FORCING SCARLET GERANIUMS.

"I have some new kinds in 60 and 48-sized pots, and am anxious to have large specimens of them in August and onwards. Will they stand heat?" Aye, and keep singing out for more if you give them light and air at all in proportion. No one tribe of plants can be more accommodating. You may keep young plants for bedding in cold pits, just free from frost. You may put them in a tropical orchid-house, and they will not grumble a bit, though they will grow faster. I once had some fine large

specimens in July and August for a particular purpose from cuttings of the previous October. I have never had such trusses of flowers on Geraniums since. One of these was *Lucia rosea*; and so large were the pink trusses, that, at a distance, they were taken for fine Hydrangeas. They received attentions, however, which I have never been able to give to such plants since. In the middle of January they were about six inches high in 60-pots. The point of the shoot was nipped out, a 48-sized pot given, and that plunged in a bottom heat of 80°, and a top heat of 60° to 65°. Five shoots appeared from the single shoot stopped. By the time these shoots were three inches in length the pots were transferred to 24-sized pots and plunged again; and when the pot was nearly full of roots, and these shoots were about four inches long, they were all stopped again, and this gave from twelve to eighteen shoots to each plant. By the time these were two or three inches long and growing freely the pots were taken out, and the plants shifted into large-sized twelves and eights, and returned to their old quarters. No more stopping was given—all the attention was bestowed on regulating the shoots, removing some overgrown leaves, and giving a fair portion of water. About the middle of June the bottom heat was declining, and the plants were raised partly out of the plunging medium; by the end of June they were raised altogether, and stood for some time on the bed. After that, until the end of the season, they received rich manure waterings; and when set on the bed, and also when placed in the flowering-house, the water was always warmed until the water out of doors was warm enough for them. Under such modes of management the Scarlet Geraniums may be grown quickly to almost any size. The soil used was fibry sandy loam, with a little very rotten dung and leaf mould. When manure waterings were given a different kind was used almost every day,—such as soot water one day, cow-dung water another, superphosphate of lime for a third, and so on.

R. FISH.

SOME OLD-FASHIONED FLOWERS.—No. 3.

THE POPPY ANEMONE.

INFERIOR in beauty to none of the early spring flowers is the Poppy Anemone; yet it is but very limitedly cultivated at the present day. With a little reflection and the nature of the flower duly weighed, reason would direct us to shew it more respect than it generally obtains for its charms. Its varieties of colours are transcendent, and its composition is of such a nature as to form (I may say), a perfect beauty. There is a certain freedom, or ease, in this flower that is not common; waving with every wind, its petals are of so delicate a nature, so soft and susceptible, as to be affected by every breath of air; opening and shutting, and gently obeying the direction and impulse of such externals, it is, certainly, very properly termed the Wind Flower.

Handsome and delicate as this plant is, it has other properties to recommend it—viz., its hardy nature and little trouble in culture. In fact, it is so hardy that nothing but such severity of weather as does not usually happen can make the Poppy Anemone sink under it. Indeed, there is no flower more proper to make a show in winter and the early spring months; and nothing has a more lively appearance near the mansion than a few beds of this old favourite flower. I remember, some years since, when living with the Marquis of Camden, Wilderness Park, Seal, Kent, it was our usual practice to grow a great quantity of this Anemone expressly for cut flowers; and surely these beauties of Nature are more becoming for decoration than many artificial flowers now so much in vogue.

The culture of this flower is so very simple, that it will be useless for me to dwell at any great length upon its culture, as almost any garden soil will be found suitable for it. Of the double varieties I will speak hereafter in a separate paragraph.

The seed of the Anemone should always be selected from the most distinct, clear colours, and from the best-formed flowers. The seed may be sown as soon as ripe, or in March, or in any of the spring months, selecting a quiet day for the operation, for the seed is so light that the least wind would take it away. Should the situation be a damp one, it will be beneficial to elevate the beds a little; but, if otherwise, it will not be requisite. A little good light loam and well-rotted cow-manure should be mixed with the soil; but if the ground is very cold and heavy, a portion of sand should also be added. The beds, thus properly prepared, should be well trodden, or allowed at least a week to settle down before the seed is sown. The seed being difficult to separate, it being covered with a downy substance, it will be requisite to be

careful in sowing, or it will be deposited in lumps. In order to well separate it, it is requisite to mix it with sand or light garden mould, and rub them together, which being thoroughly done, the seeds and mould are equally mixed and blended. Sow them altogether on a bed made level and even. The seed should then be covered with about half an inch of fine mould, and kept moist until the plants appear, which will be in about six weeks. Care must be taken to keep the seeds free from weeds, and on the approach of bad weather the beds should be slightly protected; but if the frost should prove very severe, the beds should be covered with dry fern or mats, and nothing further will be required during the winter.

It will not be requisite to take up any of the late-sown seedlings the first year, unless they appear too thickly or in clusters; but a little extra mould should be sifted over the beds as soon as the foliage dies down and is cleared away, should the bulbs appear near the surface. As the spring advances, the weeds will appear, and no time or pains should be spared in keeping the beds free from them. Should the weather prove dry, the plants will be benefited by a good soaking of manure water at times during the growing season; but as soon as the foliage begins to decay the water must be withheld; and, as soon as sufficiently ripe, the bulbs should be taken up and properly cared for. In taking up the crop many roots will escape the strictest eye; therefore, if the ground is again levelled and a little fresh mould sprinkled over the bed, a plentiful crop will appear the following spring, when many of these will flower. Most of the others, being taken up and managed like old roots—that is, properly harvested, will also show flower the same season if planted in good time.

Judgment must not be passed upon the flowers the first year or two, for some of them will appear very indifferent at first, and afterwards display their charms, forming complete flowers. I consider they should be allowed to stand three years, and then the worst sorts should be thrown away and the good ones added to the collection.

The method of propagation is by parting the roots; and it is requisite, where they are grown for ornamental purposes, to keep the colours and sorts properly numbered, that they may be known at the time of planting. By so doing we should be able to chequer them, by forming a proper mixture of purples, reds, blues, browns, whites, &c.; planting among these, in the most conspicuous places, the mottled or variegated sorts, and those which shine and blaze with colours of different hues, or planted in the style of the present day—striped petticoat and ribbon-border fashion. The planting of the Anemone will entirely depend upon the season of the year it is required to blossom; but the months of September and October are the most suitable. They should not be planted more than five inches apart.—EDWARD BENNETT, *Osberton*.

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 198.)

BERTEROA.

Nat. ord. Cruciferae. Linn. *Tetradynamia Siliculosa*.

GENERIC CHARACTER.—*Silicle* sessile, elliptic, or obovate; valves flat or concave. *Calyx* equal at the base. *Petals* two-parted. *Smaller stamens* toothed. *Seeds* oval, flat, narrow-margined.

BERTEROA MUTABILIS (changeable). *Pods* compressed, flat, elliptic, smooth. 2 ft. White and Pink. July. Levant.

B. OBLIQUA (unequal-sided-leaved). *Pods* flat, elliptic, pubescent. 1 ft. White. July. Sicily. Both those species were included in the genus *Alyssum*.

A genus allied to *Arabis*, requiring a pure loamy soil.

Propagated by short side-shoots made into cuttings, and inserted in sand under a hand-light in a shady place about August. Transplant them as soon as they are rooted into the flower-border where they are to bloom.

BIDENS.

Nat. ord. Asteraceae. Linn. *Syngenesia æqualis*.

GENERIC CHARACTER.—*Involucre* many-leaved, with many leaf-like bracts at the base. *Receptacle* chaffy, flat. *Corolla* sometimes with ligulate rays. *Pappus* of two or more pointed, rough, retrograde awns. *Seeds* four-sided.

BIDENS ARGUTA (arguta). 2 ft. Yellow. June. Mexico.

B. PROCERA (tall). *Leaves* bi-tripinnate; *leaflets* linear, acute, channelled, entire; *involucre* outer leaves blunt, downy; *germs* cuneiform, transversely compressed, two-awned. 6 ft. Yellow. November. Mexico.

B. REPENS (creeping). 2 ft. Yellow. July. Nepaul.

Yellow flowers like *Coreopsis*. They will grow in any common soil not too wet. The last named is a deciduous creeper, useful for covering naked banks or rockwork in out-of-the-way places.

Propagated by taking up the plants and cutting them into divisions, each part having its roots retained. Replant immediately in fresh soil. The best time for this operation is early spring, the plants then get established before the winter sets in. The creeper may be divided and transplanted any time of the year, weather permitting.

BISCUTELLA—BUCKLER MUSTARD.

Nat. ord. Cruciferae. *Linn.* Tetradymania Siliculosa.

GENERIC CHARACTER.—*Silicle* flat, biscutate; cells orbicular, one-seeded, laterally united to the axis. *Style* long, permanent. *Seed* compressed. *Embryo* inverted.

BISCUTELLA AMBIGUA (doubtful). *Silicles* smooth, even; *leaves* pilosely-scabrous; *radical-leaves* sinuately-toothed, narrow at the base; *stem-leaves* very few, rather cordate at base, and half stem-clasping. 9 in. Yellow. June. Italy.

B. CORONOPHOLIA (Buckthorn-leaved). *Silicles* smooth, even; *leaves* pilosely scabrous, chiefly radical, pinnatifid, two or three remote lobes on each side. 6 in. Yellow. June. Italy.

B. LEVIGATA (smooth). *Silicles* smooth, even; *leaves* mostly radical, pilose, scabrous, oblong, rather toothed or entire; *stem-leaves* linear, few, quite entire. 1 ft. Yellow. June. Italy.

B. ——— ALPESTRIS (alpine). 1 ft. Yellow. June. Hungary.

B. LONGIFOLIA (long-leaved). This is only a variety of *B. saxatilis*, having entire leaves. Switzerland.

B. MONTANA (mountain). *Silicles* smooth, even; *leaves* nearly all radical, obovate-cuneate, toothed, downy. 1 ft. Yellow. July. Spain.

B. SAXATILIS (stone). *Silicles* smooth, rough with dots on disk; *leaves* rough with hairs, mostly radical, oblong. 1 ft. Yellow. June. S. of Europe.

B. SEMPERVIRENS (evergreen). *Silicles* smooth, rough on disk with dots; *leaves* mostly radical, erect, linear-lanceolate, hoary, almost entire. 1 ft. Yellow. June. Spain.

B. STENOPHYLLA (narrow-leaved). *Silicles* disks rough with dots, not pubescent; *petals* bi-auricled; *radical-leaves* hispid, lanceolate-linear, remotely toothed, or somewhat pinnatifid; *stems* almost naked, and rather simple. 1 ft. Yellow. June. Spain.

A genus of rather pretty, low-growing plants, requiring a common soil, if calcareous, or mixed with old lime rubbish. Easily propagated by taking up the plants either in spring or autumn, dividing them into moderately strong parts, and replanting directly in freshened soil, where they are to remain. They will continue growing well for several years, if a little dressing of fresh earth be given to them every autumn.

BLEPHILIA.

Nat. ord. Labiatae. *Linn.* Diandria Monogynia.

GENERIC CHARACTER.—*Calyx* ovate-tubular, thirteen-nerved; throat naked inside, bi-labiate; upper lip tri-dentate, teeth awned; lower lip bi-dentate, awned. *Corolla* tube slightly exerted; inside exannulate; throat dilated; limb bi-labiate; upper lip erect, entire; lower spreading, trifid. *Upper stamens* abortive. *Lower stamens* fertile, ascending, exerted from corolla's upper lip. *Filaments* toothless. *Anthers* linear, rather two-celled. *Style* equally bifid at top. *Stigmas* minute, terminal. This genus has been formed from two species of the genus *Monarda*.

BLEPHILIA CILIATA (fringed). *Leaves* nearly sessile, ovate-oblong, narrowed at base, hoary beneath; *lower floral-leaves* conforming to stem-leaves; *upper* and *outer bracts* ovate-acute, coloured, equalling the calices. 3 ft. Red. July. N. America.

B. HIRSUTA (hairy). *Leaves* petiolate, ovate, roundly cordate at base, hairy on both sides; *lower floral-leaves* conforming to stem-leaves; *upper* and *bracts* linear-subulate, shorter than calices; *calices* pubescent, recurved. 3 ft. Purple. August. N. America.

A small tribe of showy plants allied to *Monarda*. The bracts are beautifully fringed like eyelashes, which is the reason of the

generic name (*Blepharis*—the eyelash). The plants send up side-shoots which may be taken off when rooted, and planted out either where they may remain or in nursery rows to be transplanted in spring. They thrive well in rather rich sandy loam.

(To be continued.)

T. APPLEBY.

BOTTOM HEAT AND ATMOSPHERIC MOISTURE.

THE term "Bottom Heat" is employed by gardeners to denote a medium warmer than the common soil, applied to the roots of plants which are natives of more sunny and genial climes, during their period of growth, to enable them to approximate more closely to the warmth of their native soil. If we examine the great book of Nature, we shall find her in most cases giving a few degrees higher temperature to the soil in which the roots flourish than to the atmosphere which surrounds them; and thus we find that, in giving assistance in this way to plants, we are only following out her own laws.

In former times we used to see old stoves with bark-beds where the plants were plunged in tan, and the same amount of stimulus in the way of bottom heat maintained in the dull dark days of winter which prevailed under the meridian sun. How often have we seen fine old orange trees plunged in a mass of hot stable-dung, and, after having made fine, succulent, fleshy roots and beautiful foliage, confined in some old dungeon of a place, where, cold, and wet, and in sour soil, they have soon lost all their stamina and health. In contradistinction to this plunging the plants in tan, how much better is the system of chambered shelves, in which we can regulate the heat perfectly, and which now generally supersedes the old bed of tanner's bark.

It will be perfectly plain to the judicious gardener that the stimulus of bottom heat is most applicable to plants during the season of vigorous growth; and that, when that ceases, the stimulating agent should be in a measure withheld, and that rest should follow the season of full development. To cuttings and young plants it is also very favourable; and we are all acquainted with its being an important agent in producing fine Melons and Pine Apples. Something like bottom heat appears to be essential to plants; for, if the branches and leaves are stimulated by heat, they will consume the sap of the stem faster than it can be supplied, unless the roots are also stimulated in some degree.

Tan and hotbeds are frequently used as resources for the rearing of tender plants; and they answer perfectly, unless to those species which have not bottom heat in their native country, and these soon become weak and blanched, presenting a drawn appearance if thus treated.

The Vine, being a native of hot climates, demands in the growing season that some attention be paid to affording its roots a congenial medium to grow in. For this purpose many schemes are practised: borders are chambered, and hot-water pipes are introduced; fermenting materials are placed upon the surface, the heat of which mostly ascends and passes off; while the roots close to the surface are heated to excess, leaving the lower ones in a state of damp chilliness quite incompatible with that of their fellows upon the surface.

Perhaps there is no greater empiricism practised than that which relates to the art of supplying bottom heat; and yet it is an art which the most uneducated men profess to understand. Happily these men are fast numbering with the "things which were." I have no doubt in my own mind that we ought to think deeply on this my theme; and I attach as much importance to the skilful regulation and judicious application of bottom heat as I do to atmospheric temperature and moisture.

It is, then, absolutely necessary for the cultivator to know something of the geographical distribution of the plants he cultivates, in order that he may not act unwisely in the application of this principle.

It is true that we find many of our hardy plants, which are benefited by the application of bottom heat during the period of forcing. Such plants as the Rose, the Lilac, and the Lily of the Valley, for instance, are benefited; because these plants, flowering as they do in May and June, enjoy for their roots the accumulated heat of our summer suns upon the ground, and have a greater supply of it than a forcing-house shelf can give where the aerial temperature does not exceed 50° or 55°. Practice says, "Introduce your Roses and other plants into gentle bottom heat;" but I think theory would urge us rather to do this in the course of their progress than at first. In the early spring the ground is not warmed; vegetation comes on but slowly till the

earth has accumulated some amount of heat, when it progresses into beauty and luxuriance.

It is an important matter to know whether the seeds we sow came from temperate or tropical countries, as in the latter case the stimulus of bottom heat is a *sine quâ non* of their perfect development. By the unerring laws of Nature, such seeds will not develop themselves in soil which has not 70° or 75° of heat; and in this case again we rely upon "bottom heat."

Thus we see in many instances the importance and necessity of bottom heat to plants which find this condition in a state of Nature; and we see also how aptly it may be applied to those hardier flowers which we force, and those exotic fruits to raise which in all their excellence is the palm of British gardeners.

Bottom heat is a great essential in the culture of East Indian aquatics. The lovely *Nymphæas*, *Nelumbiums*, &c., refuse to give their flowers unless the water in which they grow is of a temperature equalling that in which the plants flower in their native country. It is mentioned that the water in which the red *Nelumbium* flowers in China is 113°. This affords another instance of the vast importance of a geographical and climatic knowledge to gardeners, and is a powerful seconder of Mr. Justice Hallyburton's proposition—that the occupation of a gardener should be added to the professions rather than be accounted as one of the pursuits in which the workmen are designated as "labourers."

Having made these few brief remarks on bottom heat, I will proceed to say a little upon the subject of atmospheric moisture in our houses.

The conditions which regulate the supply of moisture to the atmosphere in which we grow our plants externally are entirely without our control. But in glass houses we possess the means of withholding or applying it perfectly *ad libitum*. In them we have the means of causing them to perspire excessively, so as to cause exhaustion or shrivelling; while, by a copious supply of moisture, we may enhance their growth (aided by heat) to a great extent.

It is the business of a gardener to maintain in his houses that kind of atmosphere which is most suited to the requirements of his plants; and he finds that if he keeps it too dry the foliage does not thrive and insects abound; while, if too damp, excessive growth and a watery state of the plants result. In dealing with these difficulties, it has been advised to use an instrument for measuring the amount of moisture in the air—an amount of precision which the practised cultivator rarely finds necessary. The instrument is called an hygrometer; but if you travel through the country such a thing is but rarely seen.

In the former days of gardening it was a common, but, at the same time, most erroneous practice to increase the moisture of forcing-houses by throwing on their flues (when heated), a quantity of cold water, and allowing it to evaporate in boiling steam. Such a proceeding was very unwise, changing at once the climate of the house from the dryness of an African desert to a more than tropical marsh dampness. We live in better times; and our gardeners, instead of doing this, damp all the cool surfaces of walls and floors, and thus fill their houses with an almost imperceptible amount of vapour. This requires constant attention during early forcing; for the admission of dry, cool air, and that which is constantly entering through the laps of the glass, soon dries the air of the house, rendering a further supply of moisture necessary.

And here let me again remark how important it is to have a knowledge of the native climate of plants, so as to regulate the supply of moisture in consonance with their habitats. We have made, and we are making, rapid strides in cultivation: every year attests its progress, and we can form no idea of what its climax will result in. Our younger brethren are destined, at some future day, to wear the laurels we have borne in our generation. But let me urge them (if they aspire to do so), to be very diligent in collecting facts of natural history and philosophy, and may they pay special attention to all the circumstances of geography and climate; so that, when they come to manage plants for themselves, they may have little difficulty in assigning to each such an amount of heat and moisture as may best suit its requirements.

H. BAILEY, *Nuneham*.

GARDENING AT THE NORTH POLE.

CAPTAIN M'CLINTOCK, in the deeply-interesting "Narrative" of his search after Sir John Franklin, states that on the 17th of May, 1858, his little vessel anchored at Godhaven, the farthest north of the Danish settlements in Greenland; and upon visiting the residence of one of the settlers, he adds, "I found Mrs. Olrik without a fire in her sitting-room—it was unnecessary;

the windows looked to the south, and the sun shone brightly in upon a profusion of *Geraniums*, and European flowers reminding one of home, and refreshing the senses by their perfume and beauty." A few days after, when speaking of an interchange of presents, he says, "I have been given an eider-down coverlet by the Governor, Mr. Andersen, and by Mrs. Olrik some delicious preserve of Greenland Cranberries, a tin of preserved ptarmigan, and a jar of pickled whale-skin; my table is decked with European flowers, including *Roses*, *Mignonette*, and *Violets*."

But they could not linger at this place of hospitality; and on the 29th of July they had reached Pond's Bay, and the intrepid navigator again turns aside to notice the flowers that reminded him of home. "The lands enjoying a southern aspect, even to the summits of hills 700 feet or 800 feet in height, were tinged with green; but these hills were protected by a still loftier range to the north. Upon many well-sheltered slopes we found much rich grass. All the little plants were in full flower; some of them familiar to us at home—such as the *Buttercup*, *Sorrel*, and *Dandelion*. I have never found the latter to the north of 69° before."

Such vegetable exiles had but a brief existence; but we have no mission to dwell upon the severer seasons which they and the other northern adventurers had to endure, and it must content us to extract this last note upon Arctic gardening, which we find was written in Prince Regent's Inlet under the date of August 29th, 1859. "We eat all the birds and seals we can shoot, as well as *Mustard* and *Cress* as fast as we can grow it, but the quantity is very small. We sometimes refresh ourselves with a salad of *Sorrel*-leaves, or roots of the little plant with lilac-flower of snapdragon shape, named *Pedicularis hirsuta*."

MUSA CAVENDISHII CULTURE.

I SHALL be much obliged if some of your correspondents who have been successful in the culture of the *Musa Cavendishii* would give a few remarks on its management. I am aware of what is stated in the *Cottage Gardeners' Dictionary* relative to the mode adopted by Sir Joseph Paxton at Chatsworth; but very few details are given there. For instance: When it is said that the old plant after the fruit is cut is taken out of the tub or pot, many of the roots taken off, and put into a smaller pot, and then plunged in a brisk bottom heat, in order to induce it to throw up some good suckers; but it is not stated whether the old plant is cut down, or whether the leaves are cut off. I should very much like to know exactly how the plant is then treated with regard to the stem and leaves. I also wish to know why the plant is to be taken out of its fruiting-pot, and put into a smaller one to induce it to send up suckers.

According to my own idea, I should allow the plant to remain in the pot or tub in which it had fruited, without disturbing it in the bed (provided there was a good amount of bottom heat); I should cut down the stem just above the part from which the principal leaves spring. I should cut off the leaves about two-thirds of their length, top dress, and let the suckers come up round about. In this way they would have more room to grow than if the plant were forced into a smaller pot; and the stem and leaves being cut off, as above stated, the suckers would not be much shaded.

It is also stated that suckers will fruit the first year; this, so far, I have not found to be the case, though they have been kept in a good bottom heat all the year, from January, with an atmosphere sufficient to ripen *Muscat* Grapes. From about the middle of November up to February I am obliged this year to keep the *Musas* in a stove without bottom heat, and I am in hopes that this comparative rest through the winter will cause them to send up their fruit when plunged again in bottom heat early in the spring. Though my plants are not in such very large pots, in taking them out of the leaf-bed last month I did not find any roots had made their way through the bottom of the pots into the leaf-bed. I shall, therefore, be glad of your advice how to manage this plant, so as to secure fruit the first year, if that can be accomplished by one who has conveniences for plunging them in bottom heat from February to November, but is obliged to keep them without bottom heat the remainder of the year. The heat during the winter being about 60°.—CLERICUS.

[The Plantain—that is, the fruit of the *Musa Cavendishii*, is produced in greater excellence at Chatsworth than at any other place we know of in England. So excellent is it, and so abundant as to be an available addition to the desserts there. The

late Duke of Devonshire was especially fond of it, and we believe that it invariably appeared on table at his large parties. To Chatsworth, therefore, we have applied for such information as is needed by our correspondent, and the following is the reply we have received:—

"We cut down the stem of the plant close to the ground after it has fruited. The bunch of fruit is cut off as soon as it begins to change colour, and is hung up in a warm, dry part of the house to ripen. We do not give the plants much water when not growing, but great quantities whilst they are. We do not give them manure water, but we cover the soil in which they are growing with decayed manure every spring. The suckers which spring up after the old fruiting stems have been cut away do not bear fruit the first year, but they do the second year. The border in which they are grown is not heated; nor is any bottom heat given. They are planted in the border, and not either in pots or tubs. The temperature of the house in winter is kept by fire heat at from 55° to 60°. The blossom is not fertilised by the aid of a camel's-hair brush. The air of the house is kept dry in winter, but at no other time."]

THE SCIENCE OF GARDENING.

(Continued from page 196.)

THE circumstances and phenomena attendant upon successful grafting are as follows. It is absolutely needful that the liber, or inner bark, and the alburnum, or sap wood, of the scion come in contact respectively with the liber and alburnum of the stock. It matters not whether the surfaces of the inner wood of the scion and the inner wood of the stock come in contact or not, for they never unite; and were it not that its wood enables the scion to retain its position firmly, that wood might be absent without any hindrance to the success of the grafting.

Grafting is nothing more than the healing of a wound in a tree; the lips of the wound, instead of re-uniting to each other, uniting to the lips of a wound made on part of another tree. It is a process that has been successfully practised in creatures of a higher order. The head of a Polypus has been made to unite to the decapitated body of another Polypus; the spur of a cock has been grafted upon the comb of another cock; and flaps of skin have been taken from the human body and made to unite with the skin of the face in establishing an artificial nose.

In all these operations similar phenomena occur—a granular adhesive secretion arises from the wound of the body grafted upon, and through this the circulatory vessels establish a union.

In the case of the graft of a tree, as shown in the annexed sketches, the alburnums and barks of the scions and stocks have



united; but the inner woods are entirely separate. The first figure represents a Pear scion on a Pear stock the first year after grafting, split longitudinally down their centres. If the barks and alburnums had not united there would have been a line of separation at *a*, as markedly as is seen between the two woods. This drawing was made during December, 1859, from the section of a grafting effected in the spring of 1858. Even in that brief period the stock had formed alburnum so as to fill up entirely various small spaces about the lower part of the scion.

In Fig. 2, a longitudinal section is shown of an Almond tree

(*f*), cleft-grafted on a Plum tree (*g*), showing that the wood remains perfectly unchanged on each side of the line of junction (*e e*). This is a marvellous demonstration of the assimilating



and secreting powers of the vessels of the inner bark. This bark of the Plum stock received the descending sap altered as it had been by the leaves of the Almond; above the line of junction is deposited Almond wood, but beneath that line, at a distance too minute to be appreciated, Plum wood is deposited!

We have said that the woods of the scion and graft never unite. If the graft and the stock are both small, of recent growth, their surfaces fit closely, and they have not been allowed to become at all dry, such union may take place, for the wood of the scion is in such case almost all alburnum; but under other circumstances the union of the inner woods does not occur. New wood in each succeeding year is deposited over the lines of separation, and growth goes on until scion and stock are of the same dimensions; but if at any period of their growth they are cut through transversely, the original spaces between the scion and stock will be found remaining.

In order to ascertain whether the new layer of wood is formed from the former layer of wood, or of bark, M. Du Hamel made a graft *par l'ecusson* (*Phys. des Arb.* liv. iv., chap. 4); which is done by means of detaching a portion of bark from the trunk of a tree, and supplying its place exactly by means of a portion of bark detached from the trunk of another tree that shall contain a bud. * In this way he grafted the Peach on a Plum tree, because the appearance of the wood which they respectively form is so very different, that it could easily be ascertained whether the new layer was produced from the stock or from the graft. Accordingly, at the end of four or five months after the time of grafting, the tree was cut down; and as the season of the flowing of the sap was past, a portion of the trunk, including the graft, was now boiled to make it part more easily with its bark; in the stripping off of which there was found to be formed under the graft a thin plate of the wood of the Peach, united to the Plum by its sides, but not by its inner surface, although it had been applied to the stock as closely as possible. Hence Du Hamel concluded that the new layer of wood is formed from the bark, and not from the wood of the preceding year. The same experiment was repeated with the same result upon the Willow and Poplar; when it was also found that if a portion of wood is left on the graft it dies, and the new wood formed by the bark is exterior to it.—J. (To be continued.)

ORCHARD-HOUSES.

ALLOW me to congratulate our readers on account of that most practical and interesting article on his own system of orchard-house management by Mr. Rivers; with every word of which I fully and very freely agree, except the part which seems to revive the old doctrine of the annual decay of spongioles—a doctrine that was in vogue some thirty years back, but could not bear the tickling of scientific fingers under the surface, and it went like smoke. And indeed the doctrine of the very formation, use, and application of spongioles themselves has been wrongly treated by the cultivators of botanical science among us for the last thirty years, and woefully understood by the great bulk of our gardeners. Dr. Lindley, who was at the head and front of the fallacy about spongioles all that time, has, however, recently recanted, and candidly admitted the errors as publicly as he and they taught them on the subject.

But that was not the subject I wished to notice so much as that which I fear I am myself responsible for—about Sir Joseph Paxton's "Houses for the Million." The mere glimpses

I gave of them could convey but a very faint idea of them and their uses. But it is only bare justice to say that the principle of the "Houses for the Million" is just as applicable to orchard-houses as it is to any others; and there is no house now in use in the three kingdoms, or a shape of house, from that of the Crystal Palace to the last Cucumber-box, to which that principle may or might not be applied. It has this advantage over the whole of them, that, no matter how large they may be, they are as portable as bedsteads; and the man who spends his money on them is the owner of them at all times—not the man on whose ground they happen to be erected. If it were really from what I said that Mr. Rivers was led to think so of Sir Joseph Paxton's new style of portable hothouse, we are now as square as Christmas accounts.

Now allow me to congratulate Mr. Rivers on his new mode of ventilation. That is the true way of ventilation for the vegetable kingdom; it is the way my own three minimum conservatories are on, and seven years' experience of them convinces me of the fact. It was also the very way by which so many stove and half-stove climbers were flowered in the large conservatory of Sir W. Middleton, Bart., from 1841 to 1851. At the beginning of 1852 the plan was altered to the old top-roof ventilation, and away went Beaumontias and all the rest of them—proving as much as could be that Mr. Rivers' is the right way of ventilating the roof of all kinds of plant-houses; and the larger they are, I believe, it will be found the better that system answers.

Strange it is that the best system of ventilation, and the best system of atmospheric moisture in hothouses by Mr. Fish, should appear in the same number of THE COTTAGE GARDENER, unless they did it by concert.—D. BEATON.

MONSTROUS MUSHROOM.



THE Mushrooms here represented were gathered on the morning of December 26th from a prolific bed, and being a very singular production I send it for your inspection. We have had them before growing one on the other, but not bottom upwards. This appeared somewhat deformed in its early growth, but as it increased in size the top became a perfect Mushroom as well as the bottom.—W. HILL, Keele Hall.

[This Siamese mode of growth is rare, though not unique. We remember to have seen a drawing of a similar combination not long since, but we cannot recollect in what publication. In Loudon's "Gardeners' Magazine" for 1831, p. 102, mention is made of this phenomenon, and Mr. J. Morrison, of Brompton, there says, "It is easily accounted for by supposing the Mushrooms growing close together on an irregular surface, or pushed out irregularly from irregular surfaces."—Eds. C. G.]

PINE GROWING.

I BEG to make a few remarks in favour of the old system of Pine-growing, together with a short account of some good fruit I have had the pleasure of seeing produced; but it is not my intention to enter into full detail of the culture and management of the Pine at present. I perfectly agree with Mr. Hamilton, that much time and labour have been lost by the erroneous practices as pointed out in former treatises on this subject; but do not let him suppose for a moment that he is the only person who has deviated from the old rules, and that all other Pine growers adhere to them still; for most gardeners have a system peculiar to themselves. Neither let him imagine that he has gained the ascendancy over all other gardeners, because he can produce fruit sooner, with less trouble and expense, and more abundantly, upon the "stool" system. I find Mr. Hamilton states that a friend of his had a *Montserrat* Pine, with seven suckers all in fruit at one time, and their united weight was 16 lbs. All practical gardeners know that most Pines are very prolific, and will throw up almost any quantity of suckers, and will run into fruit almost at any time; but what, I would ask, is the worth of such fruit? Let me ask the question, if one good Pine of 8 lbs. weight would not be a nobler ornament upon any gentleman's table, and of far more value than those weighing together 16 lbs., and produced from the seven suckers? I should say that it is not quantity, but size and quality which constitute the excellency of a good Pine. The Hamiltonian system may be more adapted to the conveniences of market-gardeners, to whom economy and quick return are desirable; but where noble fruit is the object in view, it is, in my opinion, out of common reason to suppose that perfect fruit can be produced from suckers; for it is a well-known fact that the finest, noblest, and most delicious fruit have been produced by the old system.

Having heard that a friend of mine had some excellent Pines, about a month ago I went over to the seat of L. G. Starkie, Esq., of Huntroyd Hall, near Padiham, Lancashire; when, to my inexpressible joy and surprise, I found some of the most splendid fruit of *Foden's Black Prince*, *King Alfred*, and *Montserrat* Pines I have seen for a great length of time. I received a letter from Mr. Taylor, gardener, on the 23rd of this month, stating that he had cut a Pine off the *Black Prince* since I was there, which weighed 6½ lbs. It measured seventeen inches round, and twelve inches deep. He has more excellent fruit growing, but it will not be ripe for a month yet. Fruit like this is highly creditable to Mr. Taylor, as well as an honour to his master's table. In my opinion, the above-named products would be good specimens for Mr. Hamilton or any other gardener to take a pattern from at this season of the year.

The best Pines ever produced in this locality, were grown at the seat of J. P. Entwistle, Esq., Foxholes, near Rochdale, Lancashire, in 1843, by the late Mr. Joseph Foden, which comprised a pit of sixty fine plants, and consisted of the *New White Providences*, *Envilles*, and *Montserrats*, together with his two favourite seedlings, the *Black Prince* and *King Alfred*. The whole of the sixty plants were cut from one pit the same season, and averaged in weight, one with another, 8 lbs. Now, these are facts, and facts are stubborn things to overthrow; but Pines like Mr. Foden's and Mr. Taylor's stand as a sufficient proof of what the old system has done, and also of what it is capable of doing still. Mr. Taylor has been in the gardens of his employer during the last forty years, and has been head-gardener during twenty-four years. He is an efficient gardener and a most excellent Pine-grower.—JAMES FODEN, Gardener, Laund, near Accrington.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 213.)

PEARS.

WELBECK BERGAMOT.—Fruit above medium size, roundish, uneven in its outline, and bossed about the stalk. Skin smooth and shining, of a lemon-yellow colour, thickly sprinkled with large russet specks and with a blush of light crimson on the side next the sun. Eye small and open, set in a shallow depression. Stalk three quarters of an inch long, inserted in an uneven cavity. Flesh white, rather coarse-grained; half-melting, very juicy, sweet, and sugary, but without any flavour. End of October and November.

Winter Beurré. See *Achan*.

Winter Beurré. See *Chaumontel*.

WINTER BON CHRÉTIEN (*D'Angoisse; Bon Chrétien d'Hiver; Bon Chrétien de Tours; De St. Martin*).—Fruit large, obtuse-pyriform, very irregular and bossed in its outline. Skin dingy yellow, with a tinge of brown next the sun, and strewed with small russet dots. Eye open, set in a deep basin. Stalk an inch to an inch and a half long, inserted in a small cavity. Flesh white, crisp, juicy, sweet, and perfumed.

This requires a wall, but is not worthy of such a situation. It is in use from December to March; and is more adapted for stewing than for the dessert.

WINTER FRANC REAL (*Fin Or d'Hiver; Franc Real d'Hiver; Gros Micet*).—Fruit medium sized, obovate, uneven in its outline. Skin of a fine lemon-yellow colour, with light brownish-red next the sun, thickly covered with pale brown dots and markings of russet. Eye open, set in a rather deep basin. Stalk an inch long, inserted in a deep cavity. Flesh yellowish, coarse-grained, juicy, sweet, and aromatic.

A fine stewing pear, in use from January till March. When cooked the flesh becomes of a fine bright purple colour, and richly flavoured.

Winter Green. See *Bergamotte d'Hollande*.

WINTER OKEN (*Oken; Oken d'Hiver*).—Fruit below medium size, roundish. Skin lemon yellow, marked with patches of cinnamon-coloured russet. Eye open, set in a round, deep basin. Stalk an inch long, inserted without depression. Flesh buttery, melting, and juicy, rich, sugary, and well flavoured. Ripe in December.

WINTER NELIS (*Beurré de Malines; Bonne Malinaise; Bonne de Malines; Colmar Nelis; Etonneau; Fondante de Malines; Malinaise Cuvelier; Nelis d'Hiver*).—Fruit below medium size, roundish-obovate. Skin dull yellowish-green, covered with numerous russet dots and patches of brown russet. Eye open, set in a shallow depression. Stalk from an inch to an inch and a half long, set in a narrow cavity. Flesh yellowish, fine-grained, buttery and melting, with a rich, sugary, and vinous flavour, and a fine aroma.

One of the richest flavoured pears. It is in use from November till February. The tree forms a handsome small pyramid, is quite hardy, and an excellent bearer.

Winter Poplin. See *Bezi de Caissoy*.

WINTER THORN (*Epine d'Hiver; Epine Rose d'Hiver*).—Fruit above medium size, obovate. Skin smooth, yellowish-green, covered with greyish-brown dots. Eye small and open, set in a wide basin. Stalk an inch long, inserted without depression. Flesh whitish, tender, and buttery, with a sweet and agreeable musky flavour. In use from November till January.

WINTER WINDSOR (*Petworth*).—Fruit large and handsome, obovate-turbinate. Skin smooth and shining, greenish-yellow in the shade and orange, faintly streaked with brownish-red next the sun; covered all over with minute dots. Eye large and open, set in a shallow basin. Stalk half an inch long, slender, inserted without depression. Flesh crisp, juicy, and pleasantly flavoured. Ripe in November.

YAT (*Yutte*).—Fruit below medium size, obtuse-pyriform. Skin thickly covered with brown russet and sprinkled with numerous grey specks, sometimes with brownish-red next the sun. Eye small and open, set in a shallow basin. Stalk an inch long, obliquely inserted without depression. Flesh white, tender, juicy, and melting, with a rich, sugary, and highly perfumed flavour.

An excellent early pear. Ripe in September. The tree is hardy, and a great bearer.

York Bergamot. See *Autumn Bergamot*.

Yutte. See *Yat*.

ZÉPHIRIN GRÉGOIRE.—Fruit about medium size,

roundish. Skin pale greenish-yellow, sometimes becoming of a uniform pale waxen yellow, covered with russet dots and markings. Eye very small, slightly depressed. Stalk an inch long, inserted without depression. Flesh yellow, buttery, melting, and very juicy, very rich, sugary, and vinous, with a powerful and peculiar aroma.

A most delicious pear. Ripe in December and January. The tree forms a handsome pyramid, succeeds best on the pear stock, and is an excellent bearer.

LISTS OF SELECT PEARS,

Arranged in their order of ripening.

I. COLLECTIONS OF SIX VARIETIES FOR PYRAMIDS, BUSHES, OR ESPALIERS.

1.	Jargonelle Williams' Bon Chrétien Urbaniste	Soldat Esperen Catinka Ne Plus Meuris
2.	Citron des Carmes Louise Bonne of Jersey Jersey Gratioli	Nouveau Poiteau Rousselet Enfant Prodigue Beurré Sterckmans
3.	Beurré Giffard Beurré d'Amanlis Baronne de Mello	Van Mons Léon le Clerc Doyenné Defais Glou Morceau
4.	Bloodgood Beurré Superfin Seckle	Marie Louise Knight's Monarch Beurré de Rance
5.	Hampden's Bergamot Fondante d'Automne Paradise d'Automne	Rondelet Winter Nelis Joséphine de Malines
6.	Summer Rose Navez Peintre Duchesse d'Orléans	Figue de Naples Jewess Zéphirin Grégoire
7.	Ambrosia Albertine Comte de Lamy	Beurré Berckmans Moccas L'Inconnue
8.	Flemish Beauty Henry the Fourth Eyewood	Thompson's Beurré Duval Forelle
9.	Early Rousselet Beurré Goubault Red Doyenné	Suffolk Thorn Henriette Bouvier Huyshe's Bergamot

II. COLLECTIONS OF TWELVE VARIETIES FOR PYRAMIDS, BUSHES, OR, ESPALIERS.

1.	Citron des Carmes Hampden's Bergamot Beurré d'Amanlis Louise Bonne of Jersey Seckle Van Mons Léon le Clerc	De Spoelberg Dr. Trouseau Beurré Berckmans Winter Nelis Beurré Sterckmans Easter Beurré.
2.	Doyenné d'Été Jargonelle Beurré Giffard Williams' Bon Chrétien Albertine Beurré Hardy	Beurré Diel Soldat Esperen Henriette Bouvier Glou Morceau Ne Plus Meuris Bergamotte Esperen
3.	Early Rousselet Summer Rose Flemish Beauty Peach Henry the Fourth Baronne de Mello	Duchesse d'Angoulême Nouveau Poiteau Beurré Bosc Jewess Moccas Zéphirin Grégoire

	4.	
Bloodgood		Suffolk Thorn
St. Denis		Thompson's
Beurré Superfin		Catinka
Fondante d'Automne		Knight's Monarch
Comte de Lamy		Joséphine de Malines
Marie Louise		Van de Weyer Bates
	5.	
Yat		Beurré Duval
Beurré Goubault		Doyenné Defais
Vineuse		Forelle
Jersey Gratioli		Hayshe's Bergamot
Eyewood		L'Inconnue
Rondelet		Beurré de Rance
	6.	
Vallée Franche		Figue de Naples
Beurré Benoît		Comte de Flandres
Navez Peintre		Rousselet Enfant Prodigue
Doyenné Boussoch		Alexandre Bivort
Duchesse d'Orléans		Jean de Witte
Paradise d'Automne		Cassante de Mars

III. VARIETIES REQUIRING A WALL, OR WHICH ARE IMPROVED BY SUCH PROTECTION.

Bergamotte Esperen	Forelle
Beurré Bosc	Gansel's Bergamot
Beurré Diel	Glou Morceau
Beurré de Rance	Knight's Monarch
Beurré Sterckmans	Ne Plus Meuris
Brown Beurré	Passe Colmar
Colmar	Prince Albert
Crassanne	St. Germain
Duchesse d'Angoulême	Van Mons Léon le Clerc
Easter Beurré	Winter Nelis

IV. VARIETIES FOR ORCHARD STANDARDS.

Aston Town	Jersey Gratioli
Autumn Bergamot	Lammas
Beurré Capiaumont	Louise Bonne of Jersey
Bishop's Thumb	Suffolk Thorn
Caillot Rosat	Swan's Egg
Croft Castle	Williams' Bon Chrétien
Eyewood	Windsor
Hampden's Bergamot	Winter Nelis
Hessle	Vallée Franche
Jargonelle	Yat

V. VARIETIES FOR STEWING AND PRESERVING.

Belmont	Flemish Bon Chrétien
Bezi d'Heri	Gilgil
Black Worcester	Verulam
Catillac	Winter Franc Real

(To be continued.)

GROWING EARLY-FLOWERING BULBS.

MR. BEATON, in his remarks on Covent Garden Market the other day, says, "They had the early Tulips, the single and double Van Thol, in small 48-pots, and five or six in each pot, every one of which is as regularly and as timely bloomed as the rest." Would he kindly say whether they employ any particular means to flower them simultaneously? for until I had adopted the following plan I was annoyed by a single bulb or so throwing up its flower far in advance of its fellows. So soon as I have got my bulbs from the seedsman in September, I plant the Tulips into shallow boxes three inches apart, and about two inches deep. Towards the latter end of October I select from the boxes a sufficient number of bulbs equally advanced in growth, and transplant them into 32 and 48-bulb pots. The pots are immediately plunged upon a hotbed at work—or it may be one previously prepared for them, Hyacinths, &c., and when sufficiently filled with roots, are removed to the Cucumber-house, liberally supplied with water, and are in bloom by the first day of December.

Perhaps the gardeners who supply Covent Garden Market have a better way of managing them, which I should be pleased to learn at Mr. Beaton's convenience.—W. CRAW.

[Simple as this question seems, it is of much more importance to hundreds and thousands than that about the secret of governing or conquering an empire. Our correspondent's method of

getting so many early Tulips to blow simultaneously in a pot is good enough in private practice; but where forty or fifty bushels of them are forced in the season that plan is too expensive. It is sufficient to place the bulbs close together with the root end downwards, and two inches of light loose earth under them, and as much over them as just to cover the points; then to water the bed and cover it to keep the "roots" in the dark. Then, when there is a fair start for leaves, the bulbs, or so many of them at a time, are lifted and potted according to their forwardness, as he does. One of the essential requisites is to have the bulbs so placed as early in August as possible.

Every bulb that is forced, and every bulb that is used in spring bedding out of doors, may be done as he does his early Tulips on the private system, and as they do them for the market. And whether for forcing or for planting out, it is best for the future welfare of all these bulbs that they be put in earth before August is out. That side of the question is of a highly scientific importance.—D. BEATON.]

STANDARD CHRYSANTHEMUMS.

UNLESS for some peculiar situation, standard Chrysanthemums are not desirable; but as our correspondent "ROSE" wishes to grow them, she has a perfect right to do so. The objections to standards of this plant are:—First. The weight of the branches, leaves, and flowers would, we fear, break down the shoots, for they are very brittle just where the shoots start from the main stem. Secondly. There would be a difficulty in preventing the shoots from so breaking off by tying them to stakes. And lastly, the Chrysanthemum is naturally a bushy-growing half-shrubby plant, sending up numerous suckers, and flowering at the ends of the shoots.

All these objections may, however, be got over, if "ROSE" is determined to adopt this novel mode of growing the Chrysanthemum; and in order to succeed, she should begin now to form the plants for that purpose in the following way:—

Choose strong-growing kinds, and take off the most forward cuttings, but do not take off the tops. Plant them singly in small pots, and place them in a gentle heat till they are rooted, then repot them in a larger pot, and repot again as soon as that pot is full of roots. Should any side-shoots or suckers appear, rub them off. By this time the weather will have become mild, and then these plants should be well staked and tied, and the pots plunged out of doors in a sheltered yet open place. The plants will, probably, be then a foot and a half high, with a straight, simple stem. Remove the stakes and put longer and stronger ones in their place, taking care not to tie too tight. In this situation they may remain all the summer, and should have constant attention in watering and tying to the stakes, and keeping the stems single till the plants have reached the desired height. Then take off the extreme top to cause side-shoots to break forth to form the head, and as soon as these have attained any length, tie some sticks across to the stake in this form +, and to these crosses tie the shoots; and as they advance in growth add more crosses till the shoots show the bloom-buds. If a willow or wire is tied to each end of these crossed sticks, the shoots may be more spread out to form a symmetrical head. As soon as the autumn approaches, if the plants are required for in-door decoration, let them be carefully lifted out of the soil with all the roots entire, and repotted in larger pots in very rich soil, and kept abundantly watered till the bloom is perfected. Such standards may be kept alive to the place whence the branches appear, by keeping them in a greenhouse free from frost and moderately supplied with water throughout the winter, reducing the balls in spring, and placing them out of doors through the ensuing summer as before. Attention to keeping down the green fly in the usual way must be constantly paid. By following this method, no doubt "ROSE" may attain the desired purpose. We should be glad to know with what success.

BUTTERFLIES.

MR. WIGHTON speaks of the Swallow-tail Butterfly as "rather rare," and as belonging to "the class of Yellow or Sulphur Butterflies." Now, though the Swallow-tail is certainly *very* local, it is not rare in localities which suit it. I once took upwards of 100 larvæ in about two hours in a very boggy fen, and most of them attained the imago state. I observed little or no difference in colour; but many of them were finer specimens than I ever before saw, and I believe as fine as any that were

ever taken in the perfect state. This is not a solitary instance of Butterflies coming finer from home-bred pupæ. A correspondent of the *Entomologists' Intelligencer* last year mentioned that he had bred *Colias edusa* from the egg, and he said the specimens were finer than any he had ever before seen.

I do not know what Mr. Wighton means by "class." *Papilio Machaon* and *G. Rhamni*—which latter, I presume, is the "Yellow or Sulphur" Butterfly he alludes to—are not in the same genus; nor, indeed, in the same sub-family. If he means they are both included in the class Insecta he is right; but to this meaning of class I should scarcely think he is alluding.

What Butterflies has Mr. Wighton seen or known as being bred from pupæ dug up under trees in the heart of London? I know of only one Butterfly which is said ever to pass into the pupa state under ground; that is an Oak feeder, and Oaks will not exist in the heart of London.—R. B. P.

THE WINES OF WOODSTOCK.

"What bliss to life can Autumn yield,
If glooms, and showers, and storms prevail,
And Ceres flies the naked field,
And flowers, and fruits, and Phæbus fail?
Oh! what remains, what lingers yet,
To cheer me in the dark'ning hour?
The Grape remains! the friend of wit,
In love, and mirth, of mighty power.
Haste—press the clusters, fill the bowl;
Apollo! shoot the parting ray:
This gives the sunshine to the soul,
This god of health, and verse, and day."

—DR. JOHNSON.

"WELL—but, Sir," taking the above lines only as evidence, the famous disputant had a clear eye for the country, notwithstanding the "shady side of Fleet Street;" and his heart must have been, sylvan inclined, seeking solace in London, by thinking and writing those rural thoughts, some of which now occur to furnish me with a pleasant and appropriate text for my present paper; for I have eighteen gallons of new Grape wine working in the room where I am writing (October 28th), in a temperature ranging from 55° to 60°; and what with the perfume of the wine, and 32 lbs. of honey in process of running off from the comb in the same apartment, a *pot pourri* is forming for me, rich indeed. When I last wrote about Grapes in THE COTTAGE GARDENER I said that the rector intended to send some samples of my wines to "head-quarters;" and I now hurry out his intention, having the fear of a New Zealander (not Macaulay's), before me, who has subsequently promised in these pages to do the very same thing. Again, are there not the Grape-growers of Surbiton to fear, about leaving one in the lurch? They are sure to press on to wine. Besides, I was "sent to Coventry" at our Horticultural here this year, which was no very pleasant event—only, luckily, I held the wines in abeyance as a reserve force. Now, to try for renown further a-field; but ament the incitements. The wines would prove themselves all the better, had I deferred their onslaught for a season, owing to some of them being so recently recruited into the bottles. I do not aim at large bunches of Grapes now I am become a wine-maker (quantity of fruit is my object), or I should feel more than half emboldened to make a dash at the gauntlet Mr. Beaton threw down the other day, and try a tilt with him next year at the Pomological, even should "Jericho" prove one's destination in consequence of the rash encounter!

My Vines have produced this year 177 lbs. of well-ripened Grapes from 520 superficial feet of wall, and have ripened their bearing-wood for next year on the above space into the bargain.

Analogous to this house-frontage Grape cultivation the *Illustrated London News* for October 8th, 1858, tells us what some of our cousins in America are doing. "A lady near Owensville, Clermont County, Ohio, writes to the *Ohio Farmer* that she has a Catawba Vine trained on her dwelling which has on it this summer 167 large bunches of Grapes, all sound, with no symptoms of rot. This statement led our friend Michael Limon, of Boardman, to count the number of bunches growing on an *Isabella* Vine which he set a couple of years ago on his premises, and, to his surprise, he found upon it 274 bunches of large size! He had the curiosity, furthermore, to count the number of Grapes on some of the bunches, and found many of them ranging from sixty to seventy each, and one that went up as high as eighty-six Grapes to the cluster!"—*Fronton (Ohio) Register*.

I have made no alteration in the system of groundwork straining my wines from that which I stated in Nos. 161 and 165 for

the year 1856, further than to note that the masons have just completed pointing with Portland cement an extra large underground tank for the purpose of saving the house sewage; and more, for the rector purchased in the early part of this year one of Read's galvanised iron tanks, swung upon wheels, which is drawn about by our odd man for the purpose of collecting the washerwomen's soapsuds to mix with the sewage, when it is applied bountifully to the roots of the Vines, the fruit trees, and all growing crops; and the annual increasing benefits derived from this liquid manuring are so evident, that our neighbours have become quite spiteful to us. Seeing these things on a small scale, I cannot allow myself to think that the London Sewage Committee will make the mistake of conveying all their main drainage into the sea. Lay "on" Mr. Mechi! Mr. Beaton "on!" and mother Earth and THE COTTAGE GARDENER will back you.

In progress, I will now proceed to lay my wine-making practice open to my readers; and although much that I have to write may be already known to them, still I am sure, from experience, that the detailed operations of separate individual practice tend to diffuse general knowledge, however common the subject may be, and at any rate become due to the periodical whence prime benefits have been originally gained.

As a means to the end, I will relate first in order the homely contrivances I make use of. They are utensils which in most places are to be found at hand, but which must be scrupulously clean. Scales to weigh Grapes; a garden-basket, the weight of which is known, to gather the Grapes; a washing-stool; three washing-tubs, ten, fourteen, and eighteen gallons respectively; a five and seven-gallon cask; two two-gallon stone bottles; two one-gallon ditto; bungs, pegs, and corks of sizes; a stout piece of canvass, and some old jelly-bags; a mallet, a pair of pincers, and a pair of cutting-pliers; a large white bason and a bread-pan; two large brown earthenware milk-pans, borrowed, *pro tem.*, from the bee-hives, which they serve to shelter; one large stone mortar and a mahogany pestle; an iron lading-bowl; a short ladder, and two stout squared stakes about five feet each in length; a bucket, two large wooden spoons; a tin funnel, a tin pint-measure, and two jugs, measuring from two quarts; a colander, and a saccharometer, whereby there hangs a tale. In June, 1856, I decided to make the Rhubarb wine (sample No. 9); and to test the degrees of sweetness in its different stages, a Roberts's saccharometer was sent for to an optician's in London (Dixies, Bond Street), as being the cheapest instrument of that description recommended for our purpose; and down one came, per Great Western Railway, superscribed, "glass with great care,"—a very delicate instrument, price 6s., and found to be broken. In the following October I decided to make the Grape wine (No. 1), and a saccharometer was again sent for, &c.; arrived superscribed, &c., and was found to be, &c. Well, the makers might, for aught I know, be paying the Great Western Railway Company a premium; at any rate, I would trust to their tender mercies no more. In the following winter another was procured in London, which I brought down myself whole. For the three, a compromise of 10s. was effected with the optician; so, including the carriage of the two unfortunates, 6s. 4d. extra were paid by the possessor of one instrument for somebody's negligence, which may be worth a note of precaution.

On the morning of the 21st of last October I thought it proper, from the glare and chilliness in the atmosphere, to make my vintage: and lucky it was that I did so, for the frosts of that and the three following nights are not likely to be soon forgotten. The Grapes were then picked from their stalks into tubs, the *White Sweetwaters* by themselves, the *Black Esperiones* by themselves: and the pestle and mortar being deposited on the washing-bench, having the fruit on one side and an empty tub on the other, bowl after bowl of Grapes was crushed in the mortar—not by a vertical jam, but by the pestle worked with a circular horizontal motion, and using sufficient force only to macerate the pulp without smashing the pips, for in the latter case they are thought to impart an unpleasant roughness to the wine. The pulp is emptied from the mortar with the bowl, into the tub, and so on till the bruising process is over. Where a pestle and mortar cannot be had, the Grapes can be hand-crushed in the colander made to rest over the tubs. The latter, containing the now-called "must," is placed in a temperature of about 55° to 60°, and is well stirred twice daily with the wooden spoon; and, at the expiration of three days, an empty tub is placed with either the short ladder or squared stakes resting upon it, and over that the colander, into which the must is laded by degrees, and the juice well pressed away by force of hands from the skins and pips, which

are tossed into a milk-pan, and thus this process is completed. The run-juice is measured, and the saccharometer plunged into it; when, should it sink to 20, $3\frac{1}{4}$ lbs. of loaf sugar per gallon are added, which bring the instrument up to 52 marked on its index. If the saccharometer counts less than 20, *more* sugar is given; if more than 20, *less* sugar. But waiting for the Editors to unite with other judgments, it confines me to no very extended tables of proportions at present: I merely point out what I have done. The skins and pips are now put into a tub or pan with four gallons of water per bucketful, to make a petit vin; and placed side by side of the sweetened liquor in the temperature above quoted to ferment—all to be stirred occasionally for three days more, when the watered must is pressed off as already explained (it would save the muscles of one's arms if a screw-press could be made use of), and instead of loaf, moist sugar may be used for this small wine, and the straining off the strong liquor is now to be commenced. A couple of chairs are stood back to back, with the ladder lying upon them, having the bread-pan and large white basin between:—Four or six canvass, or, what is better, flannel bags, are to become suspended by tin-tacks or tying. It is well to have enough; for when, as in my case, 18 gal. of wine are being made, that quantity takes some time to filter through them, and they are disposed between the spokes of the ladder to run off the white and red wines into separate utensils. Meantime the two milk-pans are placed contiguous to the arrangement, with the squared stakes resting upon them to support the casks; so that when they are filled, which they are to be as quickly as the liquor allows, and fermentation casts off the scum, it is caught within the pans. The little wine comes last, gaining extra quality by filtering through the sediment in the bags; when it becomes filled into the stone bottles, which are made to stand on the ends of the stakes projecting from the sides of the milk-pans, having a couple of soup-plates beneath to catch their scum; and insomuch as regards the "mess" the wines make in working, why it could be placed in the best parlour for that matter.

The barrels and bottles must be kept quite filled up during this process with some spare liquor reserved in a couple of jugs for that purpose. Wash the residue from the bags, spread it on the vine-border, and let the utensils be well cleansed. In a fortnight's time from the day the Grapes are gathered the casks and bottles containing the wine become deposited on their trains in the cellar, where they whisper working; and in another week's time their mouths are gently stopped by slightly dropping the bungs into them; in fourteen days more let the bungs be pressed down firmly, and the vent-pegs loosened; and in half that time fasten them. When four more months are passed, rack the liquor by placing a tub in front of each barrel and drawing out the vent and tasting-pegs. The latter are placed two or three inches above the tap-holes; and when the wine begins to run slowly, quietly tilt the casks till the sediment appears, which must be emptied into a jelly-bag to run off fine what liquid it may contain; and rinse out the casks with some of the weakly tippie, which may have been made to undergo its racking some two months previously. Never use water to rinse out casks when the wine is to be returned into them. Place some square-cut pieces of coarse canvass over the holes, and force the bungs firmly down; but allow the vent-pegs to remain in loosely for a week longer, then fasten them. The beginning of April by this time becomes introduced to us, and the wine is left in undisturbed possession till the end of the following September. Meanwhile some Champagne-bottles of both sizes are sought after in the cheapest market. I have bought them for less than 1s. per dozen; and they ought always to be obtained second-hand for that price, when they require the labour of washing, which should be done by warming some water, and casting in a modicum of soda where the bottles are laid to soak. Two or three ounces of shot successively passed into each bottle through a funnel will greatly facilitate the cleaning operation. Rinse them in clean water, and turn them upside down to drain dry.

The best champagne-corks should be procured, and a cork-presser, with a bundle of galvanised bottling-wire will be found most desirable adjuncts. And here we are again at the end of September, the vintage fast coming on, and by the end of next month the casks will be wanted; so, preparatory to bottling, prove the clarity of the wine by drawing off some from the tasting-peg. If it prove fine, all well: otherwise, and supposing the cask holds from six to nine gallons, allow about a quart to escape into a three-pint jug, and immerse therein from one-quarter to one-half ounce of best isinglass; cover over the mouth of the jug

with a cloth, and place it in a basin of hottish water on a warm hob, which will hasten it to dissolve; and then when cooled, take out the bung from the cask, and gently pour it in with one hand, whilst with the other keep quietly stirring to half-way down the barrel with a piece of lath; replace the bung, and the wine will in all probability become fined in three weeks. It is then drawn off after the manner one used for racking, and the bottles are filled by jug and funnel up to about three inches of their mouths. Press and dip each cork in a little of the wine, and drive them up firmly and carefully with the mallet to two-thirds of their lengths. Examine a wired cork in a soda-water bottle, and let it serve for a pattern, as it is quite necessary that our corks should become so secured. Then the bottles are placed away in an upright position, or otherwise, according to room, having the date of the birth of the wine ticketed legibly over them. The strong wine may be kept an indefinite period—the longer the better perhaps, but the delicate body will prove grateful by being drunk the following summer.—UPWARDS AND ONWARDS.

(To be continued.)

TRADE CATALOGUES RECEIVED.

A Catalogue of Select Vegetable, Flower, and Agricultural Seeds for 1860. By William Cutbush and Son, Highgate, near London.—A selection of the best kinds of garden, agricultural, and flower-seeds, accompanied with useful remarks on the different varieties.

Trade Catalogue of Continental Seeds. By Frederick William Wendel, Erfurt (Prussia), is a copious list of the newest and best flower-seeds; and Mr. Macintosh, Nurseryman, Hammer-smith, is agent for this country.

Catalogue et Prix Courant des Arbres, Arbrisseaux, et Arbustes, fruitiers, ferestiers et d'Ornement, de Claude Sahut, Montpellier, is an excellent catalogue, particularly rich in Vines and ornamental trees.

Catalogue of Fruit, Forest, Ornamental Trees, &c., &c. By Stuart & Mein, Kelso, N.B.—This is a neatly got up and well-selected catalogue. It contains a useful list of those fruits which are best adapted to that locality, prepared with great judgment by the Rev. R. O. Bromfield, of Sprouston—an ardent pomologist and a successful cultivator.

TO CORRESPONDENTS.

SAXIFRAGA HYPNOIDES.—We are informed that this can be obtained of Mr. E. Persac, Nurse yman, Exeter.

LADY DOWNE'S SEEDLING GRAPE.—*G. C., Armagh*, would be obliged by being told in our columns the year in which this Grape was raised.

ROSES ON THEIR OWN ROOTS.—(*A. B.*)—The twelve best Roses on their own roots, in the very centre of England, and in Carshalton, on the other side of Sutton, and not far from Epsom Downs, are the following:—*Souvenir de Malmaison* and *Devoienensis*, *Jules Margottin*, *Madame Vidot*, *Madame Masson*, *Baronne Prevost*, *Géant des Batailles*, *Caroline de Sansal*, *Augustie Mie*, *General Simpson*, *Général Jacqueminot*, and *Colonel de Rougemont*. If you cannot get them all on their own roots, buy them on the lowest stocks you can find, and bury the worked parts in the planting, as Mr. Rivers very properly recommends to do with those on Manetti stocks, and they will soon be on their own roots: and as you are near the chalk, no other way can answer half so well.

VINE-BUD (*J. F.*).—Mr. Beaton says that he has no means for proving wine Grapes, or even good dessert ones. All that he can undertake about Grape Vines is to prove them under his own eye in the climate of London, if plants are forwarded to him. He cannot command the necessary care for rearing Vines from eyes or cuttings.

DOUBLE PETUNIAS (*Great Baddow*).—Besides *General Havelock*, crimson, *Antigone*, white, and *Le Messange*, grey, which you have, the next best double Petunias for pots are *Hesperis*, rose and lavender, *Lilac Model*, *Madame Mieliez*, white, *Red Cross Banner*, fine purple crimson, *Monsieur Lanier*, blush, and *Atrato*, rose and lilac.

ERRATUM.—P. 208, col. 2, line 35 from bottom, for "north-east" read "south-east."

CYANOPHYLLUM MAGNIFICUM AND CALADIUM CULTURE (*Greenhorn, Ayrshire*).—This fine-foliaged plant belongs to Melastomaceæ—the same order as the *Pteroma elegans*: hence its flowers may be expected to be something similar—that is, with four petals and numerous stamens. We believe it has not yet flowered in Europe. Possibly it may require to become more woody and have a season of rest before it blooms. As to its propagation short stubby side-shoots well hardened would be the most certain to strike; but the end-shoots and leaves, with a bud at the bottom of each, root readily enough if taken off in early spring or summer, planted in sand, placed under a bell-glass in a gentle bottom heat. If the leaves are very large, they may be reduced by clipping with a pair of scissors. Yours is a most extraordinary plant. The leaves are the largest on record. We should be glad to hear when it flowers; and the size, colour, and position of the bloom. You have been unfortunate with Caladiums; but you do not say how you have treated them. Had you done so it would have been useful as a warning to others, and we should have been able to tell you

where you had missed your way. You may have kept them too dry, too wet, or too cold. The proper way is to keep them moderately dry, in a temperature of 55° to 60° in winter. Some cultivators keep them in a higher temperature, and growing slightly all the winter. That is certainly a safe method, and you may adopt it if you have the convenience.

ALLAMANDA PARAGUAYENSIS AND NERIIFOLIA (*A Subscriber*).—These are both shrubby—that is, not climbing plants: hence they should be grown as dense bushes. You did quite right last season to cut them down; but you should have cut lower, and when the shoots broke and had grown six or eight inches they should have been topped to cause them to break again. You would then have had lower and more dense bushes, and each shoot would have bloomed freely this summer. These two species do not require such a high moist atmosphere as the climbing species. If kept too hot and too moist they will grow slender, and be drawn up, and will not flower so freely, if at all. As it is, you had better cut down your two plants nearly to the place you cut them down to last season; and when they have broken again repot them, and stop them again in May or June, and then place them in full sun and plenty of air. In autumn and winter keep them, if you can, in a temperature of from 45° to 55°, and give them only just water enough to keep them from flagging. This will throw them into a resting state, and then they will be certain to flower abundantly.

ROCK PLANTS (*Idem*).—The following is a list of rock plants worthy of culture, exclusive of Saxifrages and Sedums:—

<i>Achillea tomentosa</i>	<i>Dianthus cæsius</i>	<i>Phlox nivalis</i>
<i>Ajuga reptans rubra</i>	<i>D. marginatus</i>	<i>P. procumbens</i>
<i>Alyssum saxatile</i>	<i>Draba aizoides</i>	<i>P. setacea</i>
<i>Antennaria alpina</i>	<i>Frankenia laevis</i>	<i>P. subulata</i>
<i>Arabis alpina</i>	<i>Gentiana acaulis</i>	<i>P. verna</i>
<i>A. lucida</i>	<i>G. verna</i>	<i>Potentilla alpestris</i>
<i>A. lucida variegata</i>	<i>Geranium Lancastriense</i>	<i>P. reptans flore pleno</i>
<i>Arenaria longiflora</i>	<i>Gnaphalium dioicum</i>	<i>Salix herbacea</i>
<i>A. nardifolia</i>	<i>G. Olympicum</i>	<i>Sempervivum arach-</i>
<i>Asperula odorata</i>	<i>Gypsophila prostrata</i>	<i>noideum</i>
<i>Aster alpina</i>	<i>Hedysarum obscurum</i>	<i>S. globiferum</i>
<i>Aubrietia purpurea</i>	<i>Hieracium alpinum</i>	<i>S. grandiflorum</i>
<i>Calandrinia umbellata</i>	<i>Iberis corifolia</i>	<i>S. hirtum</i>
<i>Campanula Carpatia</i>	<i>I. sempervirens</i>	<i>S. montanum</i>
<i>alba</i>	<i>Linum flavum</i>	<i>Silene acaulis</i>
<i>C. muralis</i>	<i>Lotus corniculatus</i>	<i>S. quadridentata</i>
<i>C. pumila</i>	<i>plenus</i>	<i>S. Schafta</i>
<i>C. pumila alba</i>	<i>Oenothera prostrata</i>	<i>Thymus montanus</i>
<i>Cheiranthus Marshallii</i>	<i>Oxytropis Uralensis</i>	<i>T. tomentosus</i>
<i>Crucianella stylosa</i>	<i>Phlox frondosa</i>	<i>Veronica orientalis</i>
<i>Dianthus alpina</i>		

You will find the definitions you require in Lindley's "School Botany" and "Elements of Botany."

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SEASON OF 1859—WINTER LAYERS.

THE year 1859 having now closed, poultry breeders can judge if it has been a successful one or not as regards the rearing of poultry. As far as my experience goes, it has been an unusually good one; the late dry spring and summer having been favourable for the young chickens. On looking over my poultry accounts at the end of the year, I see I have this season had 234 chickens hatched of different sorts, and six only have died, which were very weakly, and twelve have been accidentally killed; all the others have been reared strong and healthy. I fear this very wet winter will be more hurtful to poultry than it has been hitherto, and that colds and other maladies will be prevailing among them. They will require every care to be taken of them, and their owners will afterwards be amply repaid for so doing.

I am continually asked the question, "Which are the best birds to keep for laying eggs in the winter?" One person tells me they have Spanish, and have no eggs. Another, they keep Hamburgs, and not an egg have they got! On inquiry I find they have a few old hens, and some late summer-hatched pullets. The early pullets having been served up in different culinary ways on the table, the cooks having peremptorily ordered, from time to time in the summer, any chickens in the yard to be killed, as chickens they must have. The poultry women remonstrate and argue (but to no purpose) that they will have no eggs in the winter; but as chickens are then wanted, the early-hatched pullets are condemned for kitchen use. I can from experience recommend that the March and April Spanish and Hamburg pullets should be kept. The Silver-spangled I find better than the Golden; and if they are properly fed, there will be no lack of eggs the following winter. The early Dorking pullets will lay in the autumn, but the frost I find stops them.—FREEFOLK.

CRYSTAL PALACE POULTRY SHOW.

WE beg to remind our readers, and more especially our poultry friends, that the entries for the Crystal Palace Winter Show of Poultry will close on the 14th of the present month. There is no doubt but that the coming exhibition will fully maintain the

high renown of its predecessors; indeed, by reference to the printed schedule, we observe the whole list of premiums has been carefully revised throughout, and carried out with that determination to liberality that has always marked the proceedings of this Society. The value of the prizes in several instances has consequently been considerably augmented. Among these improvements, we find the first prizes for the Bantams have been increased from £2 to £3—a feature that will certainly insure the best collection of these popular varieties of fancy poultry that has yet been exhibited, and at the same time add much to the interest of the meeting.

PRESTON POULTRY SHOW.

JANUARY 5TH & 6TH.

THE PRESIDENT'S CUP.—GAME COCK.—Silver Cup, E. Archer. Second, R. Leigh. Third, G. W. Moss. Fourth, Captain Hornby. Highly Commended, G. W. Moss, J. M. Baker, F. Munn, R. Woods, J. Camm, W. Wright, W. and M. Grimshaw. Commended, G. Smith, H. Sewell, Captain W. Hornby, J. Bradwell, T. Robinson, R. Woods, R. Whittam, H. Eastham, jun., R. Swift, A. H. Emery, J. Price, W. Dawson, J. Houliker, jun., J. Brown. (The whole class was a very superior one, each exhibitor being worthy of praise.)

PATRON'S PLATE.—GAME COCKEBEL.—Piece of Plate, R. Woods. Second, C. Barwis. Third, R. Swift. Highly Commended, Captain W. Hornby, J. Bradwell, T. Robinson, R. Whittam, W. Wright, J. Price, C. H. Wakefield, J. S. Butler, E. Lister, R. Leigh, T. Emmett. Commended, J. Orr, J. M. Baker, W. Rogers, T. T. Parker, F. Worrall, E. Livesey, T. Bamber, H. Horton, R. Houlding.

GAME BANTAM COCK.—First, R. Hawkesley, jun. Second, W. & N. Grimshaw. Third, J. Camm. Highly Commended, I. Thornton, M. Turner, J. Masheter, T. T. Parker, T. H. D. Bayley, W. C. Worrall, Captain H. N. Pedder. Commended, W. Hornsey, D. Parsons, W. Chester, P. Cartwright, H. Worrall, and T. Burnett. (A splendid class of birds, very much superior to those of last year.)

GAME (Black-breasted and other Reds).—First, J. M. Baker. Second, T. Procter. Third, T. Robinson. Highly Commended, G. W. Moss, Capt. W. Hornby, W. Rogers, H. Eastham, jun., G. Love, W. and N. Grimshaw, and E. Worrall. Commended, Captain W. Hornby, R. Swift, J. Barwis, T. T. Parker, F. Worrall, J. Fletcher, W. Dawson. (The finest class of Game fowls ever brought together. Not a bad ped in the whole class.)

GAME (White and Piles).—First, Messrs. Haigh and Hartley. Second, Mrs. H. Sharp. Third, W. and N. Grimshaw. Highly Commended, T. Robinson. Commended, W. Newsham, W. Fallows, H. N. Harrop, and T. Emmett. (A good class and a decided improvement upon last year.)

GAME (Duckwing and other Greys and Blues).—First, J. Brown. Second, R. Dickson. Third, H. Worrall. Highly Commended, J. Crossland, jun., F. Worrall, and W. Dawson. Commended, T. W. Jones, W. and N. Grimshaw, H. Hebblethwaite and Co., and J. Hindson. (Also a capital class.)

GAME (any other variety).—First, W. Dawson. Second, G. Hellewell. Third, F. Munn. Highly Commended, T. Burgess, jun., and J. Brown. Commended, J. Crossland, jun. (A superior class; a great improvement in Black Game.)

GAME (Chickens of any variety).—First, R. Leigh. Second, E. Archer, Third, W. Dawson. Highly Commended, R. Carr. Commended, G. Smith, J. M. Barker, G. W. Moss, J. Anderton, J. Andrews, R. Woods, J. Fletcher, J. S. Butler, G. Love, R. Carr, W. and N. Grimshaw, R. Dickson, and T. Dodds.

SPANISH.—First, J. Garlic. Second, R. Teebay. Third, C. Felton. Highly Commended, R. Teebay, and A. F. Watkin. Commended, J. H. Craigie, and Mrs. Stow. **CHICKENS.**—First, R. Teebay. Second, J. R. Rodbard. Highly Commended, J. R. Rodbard, R. Teebay, and J. K. Fowler.

DORKINGS (Coloured).—First, T. Greenhalgh. Second, Capt. W. Hornby. Third, T. W. Hill. Highly Commended, S. Burn.

DORKINGS (White).—First, D. Parsons. Second, J. Robinson. **CHICKENS.**—First, Captain W. Hornby. Second, J. F. Newton. Highly Commended, J. Robinson, and C. H. Wakefield. Commended, T. W. Hill, W. W. Rutledge, D. Parsons, and Mrs. Stow.

COCHIN-CHINA.—(Cinnamon and Buff).—First, W. Dawson. Second, H. Tomlinson. Third, Miss W. Musgrove. Highly Commended, J. Cattell, and T. Burnett.

COCHIN-CHINAS (Brown and Partridge-feathered).—First, T. Stretch. Second, P. Cartwright. Third, C. Felton. Highly Commended, J. Cattell.

COCHIN-CHINA (any other colour).—First, W. Copple (White). Second, G. Lamb (White). **CHICKENS.**—First, H. Tomlinson. Second, T. Stretch.

BRAHMA FOOTRA.—First, Second, and Third, R. Teebay. Highly Commended, J. H. Craigie. Commended, J. K. Fowler, and R. Teebay.

HAMBURGH (Golden-pencilled).—First and Second, J. Martin. Third, W. C. Worrall. Highly Commended, W. Brown, Messrs. Carter & Valliant, J. N. Coulthurst, W. Banks, T. Robinson, W. Pierce, W. Tavenor, S. Smith, Bird & Beldon (Most extraordinary class, almost every pen deserving a prize).

HAMBURGH (Silver-pencilled).—First, E. Archer. Second, J. Dixon. Third, E. Archer. Highly Commended, J. Munn, Mrs. H. Sharp, T. Keable.

HAMBURGH (Golden-spangled).—First, W. R. Lane. Second, W. Dawson. Third, J. Ashcroft. Highly Commended, H. Carter, R. Miller, W. Kershaw, S. Whittam, J. Robinson, I. Davies, W. Banks, M. H. Broadhead, S. Fielding, W. C. Worrall.

HAMBURGH (Silver-spangled).—First, J. Dixon. Second, Mrs. H. Sharp. Third, H. Carter. Highly Commended, J. Robinson, J. Cheers, J. Mitchell, Bird & Beldon.

POLAND (Gold and Silver).—First, W. Dawson. Second and Third, J. Dixon. Highly Commended, Col. Clowes, J. Dixon, G. C. Adkins.

POLAND (any other variety).—First, J. Dixon. Second, Col. Clowes. Highly Commended, Col. Clowes, T. Battye (hens), J. Dixon. Commended, J. Dixon.

ANY VARIETY.—First, A. G. Brooke (Malays). Second, W. Dawson (Sultans). Third, J. Scott (Black Hamburg). Highly Commended, J. Andrew (Black Hamburg). Commended, Mrs. Robinson (Black Hamburg); J. Scott (Black Hamburg); Miss Robinson (Cuckoo Dorkings); C. Ballance (White Malays); S. H. Hyde (Black Hamburgs.).

BANTAMS (Game).—First, M. Turner. Second, H. Worrall. Third, H. D. Bayley. Highly Commended, I. Thornton, J. E. Mapplebeck, T. T. Parker, J. & R. Blackburn. Commended, J. H. Craigie, L. Deacon, M. Turner, J. Davenport, W. Silvester, H. Worrall, Rev. J. Bowden, R. E. Ashton. (An excellent class).

BANTAMS (Gold-laced).—First, G. C. Peters. Second, T. W. Hill. Highly Commended, Rev. G. F. Hodgson.

BANTAMS (Silver-laced).—First, G. C. Peters. Second, J. Dixon.

BANTAMS (any other variety).—First, J. Cattell (Black). Second, G. C. Adkins (White). Highly Commended, J. Dixon (Black); W. Elkington (White); J. M. Coulthurst (Black); E. Hutton (Black); J. Crossland; M. Ridgway; W. C. Worrall (Black); F. Hardy (White). (This is a very excellent class).

SINGLE COCKS.—*Spanish*.—First, T. Robinson. Second, R. Teebay. Highly Commended, S. H. Hyde, R. Teebay, and C. Felton. *Dorking*.—First, J. Robinson. Second, R. Payne. Highly Commended, J. Robinson and T. Emmett. *Cochin-China*.—First and Second, W. Copple. Highly Commended, G. C. Peters. (The whole class highly commended.) *Hamburg* (Gold and Silver-pencilled).—First, E. A. Wilkinson. Second, Parkinson and Lawrenson. Highly Commended, E. Archer, J. N. Coulthurst, Carter and Valliant, W. C. Worrall, and F. Hardy. *Hamburg* (Gold and Silver-spangled).—First, W. R. Lane. Second, Haigh and Hartley. Highly Commended, I. Davies, S. H. Hyde, Mrs. H. Sharpe, J. Ashcroft, and W. C. Worrall. *Any other variety*.—First, R. Teebay. Second, F. Hardy. Highly Commended, Col. Clowes, J. Dixon, G. C. Adkins, R. Teebay, and Bird & Beldon.

DUCKS (Aylesbury).—First, J. K. Fowler. Second, J. Robinson. Highly Commended, W. Brown, and W. Kershaw.

DUCKS (Rouen).—First, R. Chew. Second, E. Worrall. Highly Commended, J. K. Fowler. (The whole class commended.)

DUCKS (Black, Call, or Common Greys).—First and Second, Miss S. Perkins (Call and East Indian). Highly Commended, Rev. F. B. Pryor. (This class commended.)

DUCKS (any other variety).—Prize, Capt. H. N. Pedder (Carolina). Highly Commended, J. Dixon (Mandarin).

GESE.—Prize, J. Price. (The whole class highly commended.)

TURKEYS.—First, J. Dixon, W. Kershaw, J. Price, and Sir T. G. Hesketh. (All commended.)

BEST PAIR OF GAME HENS.—First, R. Wood. Second, G. W. Moss. Third, J. M. Baker. Highly Commended, G. Smith, H. Sewell, T. Robinson, J. Price, Captain H. N. Pedder, Messrs. Parkinson and Lawrenson, and Messrs. Bird and Beldon. Commended, Captain Yates, W. Rogers, E. Whittaker, J. Billyeald, W. Lomax, R. Swift, G. C. Peters, J. Price, T. T. Parker, J. Fletcher, E. Livesey, H. E. Porter, W. C. Worrall, W. Dawson, C. H. Wakefield, J. L. Holmes, and J. Brown. (The Judges desire to say that such an assemblage of Game hens has never before been brought before their notice, and that the promoters of this prize deserve the highest possible praise. In justice to the exhibitors, it is only fair to say that there was not an unworthy pen in the whole class.)

BEST PEN OF WHITE TURKEYS.—First, Mrs. M. Brown. Second, J. Crossland, jun.

PIGEONS.—*Almond Tumblers*.—First, W. Cannan. Second, E. A. Lingard. Commended, G. C. Adkins. (Several pens in this class excluded from taking prizes by Rule 3, which the Committee requested should be strictly adhered to.) *Tumblers* (any other variety).—First, J. Percival. Second, E. A. Lingard. Commended, G. Goore, G. C. Adkins, Capt. H. N. Pedder, E. A. Lingard, and H. Ashcroft. *Carriers*.—First, P. Eden. Second, L. and C. Layland. Highly Commended, G. C. Adkins. Commended, E. Worrall, and Capt. H. N. Pedder. *Pouters*.—First and Second, P. Eden. Highly Commended, G. C. Adkins, and T. Ridpath. *Runts*.—First, W. Cannan. Second, E. A. Lingard. Commended, C. Baker. *Jacobins*.—First, T. T. Parker. Second, G. C. Adkins. Highly Commended, T. T. Parker. *Fantails*.—First, T. Ridpath. Second, G. C. Adkins. Highly Commended, Capt. H. N. Pedder. Commended, G. C. Adkins, and L. and C. Layland. *Owls* (Capt. H. N. Pedder's Cup).—The Cup, E. Vernon-Harcourt. Second, G. Morgan. Highly Commended, G. C. Adkins, G. Morgan, and E. Worrall. Commended, T. Pincock, Capt. H. N. Pedder, and T. Ridpath. *Trumpeters*.—First and Second, F. Mewburn. Commended, L. and C. Layland, and T. Ridpath. *Barbs*.—First and Second, P. Eden. Commended, T. T. Parker, and R. A. Lingard. *Turbits*.—First, G. Morgan. Second, E. Worrall. Commended, G. Goore, P. Eden, and E. Worrall, and L. and C. Layland. *Nuns*.—First, P. Eden. Second, withheld. *Dragoons*.—First, J. C. Adkins. Second, T. T. Parker. Commended, W. Dawson and J. Brown. *Any other New or Distinct Variety*.—First, Captain H. N. Pedder (Swallows). Second, P. Eden (Hyacinths). Highly Commended, Captain H. N. Pedder (Lahores). Commended, G. Goore and J. B. Edge.

The Judges were:—Mr. Tegetmeier, of London, and Mr. Smith, of Shipton, for the general classes; and Mr. Fowlds, of Chowbent, and Mr. Bailey, of Carlisle, for Game; and Mr. Tegetmeier for Pigeons.

POULTRY SHOWS ON THE OTHER SIDE OF THE WORLD.

FROM seeing by your publication the great interest you take in poultry and their shows, I trust will be sufficient excuse for my addressing you.

Enclosed is the report of our last Show. If you think it worthy of a place in your valuable publication I shall feel much obliged, as also the Committee.

There is one matter to which I should wish to draw your

attention—viz., that our Society is only in its infancy, having been established only four years; and also that our stock has to be imported from England—some 16,000 miles, in long voyages of three months at least—so that we labour under many disadvantages.

My most important object in writing to you is to show that in the antipodes we are not behind even in Poultry Shows. Persons who have recently arrived among us say that our Show was equal to some of the smaller shows in England.

My being a Tasmanian accounts for my not having seen any Shows in the other parts of the world, that I am not able to judge for myself; but I hope some day to visit England, and be able to decide for myself.

I have two questions which I should feel greatly obliged if you would be kind enough to answer in your publication.

1st. Should the white of the Spanish cock's face be smooth, or should it be puffed up in lumps, so that the bird can scarcely see out of his eyes? My own opinion is that it should be almost as smooth as his ear-lobes. This has been a subject on which there has been much controversy with our members for some time. If you would give this with a few of the other points I shall feel much obliged.

2ndly. With reference to Pigeons. I wish to know the exact markings of Beards; but the most important is, Whether they should be clean thighed? I should like all the points. I see by the February Number that Mr. Brent has named five points. By point I mean the markings.—ROBIN L. HOOD, *Hobart Town, Tasmania*.

[1. The white face in Spanish fowls usually becomes more wrinkled, or "puffed up in lumps," as the bird increases in age. It is not at all objectionable. Whiteness without any tinge of red is the desired characteristic, whether the face be smooth or wrinkled.

2. As to Beard Pigeons the following is stated by Mr. Brent. "The correct marking is, I believe, as follows:—The top of the head, neck, breast, back, and the secondary wing-feathers, as also the greater and lesser wing-coverts, are coloured—as blue, silver, chequered, black, dun, red, yellow, or mealy; and according to the colour of these parts so are they designated Bluebeards, &c. The white portions are these: First, the beard, which is a triangular white patch beneath the beak, resembling a white beard on the coloured plumage of the Pigeon; and from this circumstance this kind of marking is called bearded. The white mark should include the lower mandible, which should also be white though the upper is dark; and I think I have heard such a one called 'box-beaked.' The white feathers extend in a line from the bill to the eyes on each side under the beak, being about a finger's breadth, and drawing gradually to a point below the eyes. This is designated 'swallow-throated'; and if clean and regular is much admired. If marked with dark feathers it is said to be 'foul-bearded;' or should the white extend too far down the throat it is called 'slobbered;' and when it runs round the head it is said to be 'ring-headed,' which are all regarded as faults. The second point is the flights. These should be all white; and the bird is then said to have 'ten aside.' Not only the ten flight feathers in each wing should be white, but also the small feathers at their base that cover the pinions to the first joint of the wing, when they are said to be 'clean-flighted;' but if dark feathers occur among them, or the white pass too far along the wings, they are called 'foul-feathered.' Thirdly: the tail must be quite white, all twelve feathers, as also the upper and under tail-covert feathers. Lastly: the rump, vent, and thighs must also be clear white, the same as in the Baldheaded Tumblers. These are, I consider, the accurate markings of the Beards. Blue and Silver have black bars across the shoulders of the wings.

"Bearded Tumblers, especially the Blue ones, are considered the best flyers, and often tumble very nicely. The beard pied, or beard marking, seems particularly that of the Tumbler Pigeon, as I have met with Beards more or less regularly marked in every variety of the breed that I have seen, and not in any other sort.

"Shortfaced Beards are scarce, being much crossed with other shortfaced Tumblers to improve their heads and beaks; consequently they are not often so accurately marked—so much stress being laid on a Shortface by some fanciers, that the regular marking is often very much overlooked: so much so, indeed, that some fanciers have been content to admire a mere rough and irregular white speck beneath the bill, but which does not touch the beak; and also to look even with approbation on dark thighs; thus showing that use will blind the eyes even of fanciers to what they would otherwise regard as blemishes. I do not

mean, however, to disparage the shortfaced birds; but while fanciers are improving the head and beak, I think they ought not to overlook regularity of feather."]

TASMANIAN POULTRY SOCIETY'S ANNUAL SHOW.

THE Annual Show of this excellent Society took place (Wednesday, July 27), at the Town Hall, Macquarie Street, granted for the purpose by the Mayor and Aldermen, an arrangement which succeeded in giving an impetus to the Committee, as well as attracting a large number of visitors. His Excellency, Lady Young, &c., were among the earliest visitors; and during the afternoon the Rev. Mr. Binney, Mr. Hopkins, Mr. Chapman, M.P., Colonel Broughton, Mr. Nairn, Colonel Hungerford, his worship the Mayor, and a number of other gentlemen with their ladies and members of families inspected the Exhibition. All available space, even to the steps of the large hall, was occupied with pens, of which there were nearly 150, including the sixty pens belonging to the Society. So great was the competition, that we understand at least twenty pens could not be received for want of room. Several new features were introduced on this occasion in the shape of sweepstakes for silver cups, subscribed by members without interfering with the funds. The cups which were imported, were finely wrought specimens of artistic skill, and were much admired. They were competed for by Spanish fowls; and Mr. Pope, the most successful breeder of Spanish fowls in the district, won the seven-guinea cup. A medal for Spanish, and one for Game, (manufactured by Mr. Wimbush, were also given), the latter being a gift by the manufacturer. There were five entries for this sweepstakes, and eleven entries for the Spanish.

The Show was decidedly the best ever witnessed in Tasmania—the Governor and other gentlemen frequently expressed their opinion to that effect. The *Game* and *Spanish* were unquestionably superior—and there was a good show of *Polands*, *Hamburghs*, and birds of that class. The *Dorkings*, which have not hitherto attracted much attention, also showed remarkably well. The *Rabbits* were good. Also the *Pigeons*, among which we noticed Mr. P. Allen's Almonds, very handsome and very desirable for connoisseurs. The Canaries, Goldfinches, and other cage birds, sent by Messrs. Hissey, Jenkins, &c., commanded much praise. A fancy cage, manufactured by Mr. Anderson, tinware man, of Argyle Street, was a prominent object of attention, and met with a purchaser before it was placed. Upon the whole, the Exhibition was highly successful and encouraging; and it was repeated in the evening, when the Hall was brilliantly lighted with gas. A great many visitors attended, and the attractions were enhanced by the performances of "Hewlin's Band."

JUDGES OF THE SHOW.—*Spanish and other Fowls*: Messrs. John Patterson, W. Purkiss, Anderson, Begg, and W. Thomas.—*Game*: Messrs. J. Eddington and W. Nicholls.—*Rabbits and Pigeons*: Messrs. G. Padman, and R. L. Hood.

MY ROOF BEES.

THE home of your correspondent is an old-fashioned mansion, in the pavilion-roof of which my little favourites, the honey bees, have for an unknown number of years taken up their abode, at various exposures from chilly north to sunny south; attracted, perhaps, by the store of sweets obtainable every summer from an avenue of old limes—the said limes resounding during the blossoming season, "from early morn till dewy eve," with the hum, as it were, of ten thousand hives. In the days of the writer's boyhood it was a great pleasure for him to sit beneath their shade, charmed into stillness, listening to this sweet music, or watching struggling combatants as they fell—the ground being strewn all around with the bodies of the slain—wasp, worker, and humble bee; many locked in that mortal embrace which death itself could not separate.

In those days, that abominable insect—the wasp, had no quarter, either when engaged in these unequal battles, or feeding, vulture like, on the dead. Indeed, it was a frequent nightly amusement, with the aid of a supply of brimstone, attacking them in their citadels, pouncing upon their queen, placing her beside her sister monarchs on a long brass pin, and at the season's end exhibiting the trophies of my fights with as much gusto as an Indian warrior his scalps.

Reaping no benefit from my lodgers but the occasional pleasure of hearing,—on a fine summer's afternoon between the hours of four and five, when the sun shone hottest on them,—

the hubbub of a departing colony to enrich a neighbour, or settle undiscovered in the woods. More rarely they took a circling flight, and came back to occupy a spare compartment in the roof. I recollect four years ago some workers in a hay field picking up pieces of comb underneath an elm, and on looking up discovered a swarm fairly established, with a large comb wrought on an out-spreading branch not two inches in diameter. They were hived and removed to the garden, but owing to the blustery weather that succeeded, as it had been prior to their discovery, they dwindled away.

A few years ago I put myself to some expense in having two hives (north aspect) opened from the inside, and found they occupied the space (ten inches) betwixt the lath and beams their combs being attached to the latter. The one was of considerable antiquity, judging from the inky blackness of the combs, and being in the lowest angular division were circumscribed for room, and, consequently, must have hived regularly. For this swarm I constructed a box with a window in front, and without a back, so as to allow the combs to be continued out into it; and as recommended in a work I had beside me, placed bars in the top of the box one inch and one-eighth broad, and half an inch between. It never occurred to me till the box was about completed, Would the bars at that size and distance apart be opposite the combs in a hive where the architects had established themselves without human intervention? On fitting it in I found they tallied to a nicety—setting at rest, in my mind, at least, a disputed point with some apiarians.

I may here mention a curious instance of the sagacity and united efforts of these truly wonderful insects. Foreseeing a difficulty in removing the box when filled, by the combs in the roof being wrought out continuously into it, to try an experiment I cut a bar the breadth of a comb, and the depth of the box, into the back of which I placed it, jamming it as tightly as I could immediately before a central comb, which they were busily extending forward, never thinking but that on reaching this upright bar they would come round and start it afresh in the box. You may judge of my surprise on returning after a couple of days' absence to find my little friends gathered, *en masse*, on the combs opposite the top of the obstructing-bar, packed as close as possible, "shoulder to shoulder," like our gallant highlanders in the hour of need, shoving away, might and main, the top of the bar already a long way off the plumb, inwards from the roof. As the resistance was always lessening, it would speedily have fallen to the bottom; but so struck was I with their ingenuity, that I could not resist instantly removing it. Their labours were then carried on uninterruptedly till the month of September, when I severed the combs at the juncture with a long-bladed knife, and found the box to weigh 28 lbs. nett, of beautifully pure comb, which I partly ascribed to the very cool situation. The other hive was a remarkably strong swarm of only the preceding season, with nearly the depth of the roof before them to work in. I, therefore, boarded off the space about twenty inches below the combs, and into it fitted two frames of moveable guider-bars, the one above the other. Opposite the upper tier I placed a box without a back, as in the other hive, so as to leave them no alternative but to continue their works, either down on the bars, or out into the box. They did both simultaneously, I observed through the window in the box, and the glass frame opposite the bars. The greater part of the bottom of this box was filled with perforated zinc to keep down breeding. On removing it in September, with 30 lbs. of comb, I found all above the zinc perfectly white; the after part, to which it did not extend, discoloured from brood; shewing, I think, the benefit of judicious ventilation, though this has sometimes been doubted. I often observed the queen perambulating all over the combs in this box. The guider-bars I afterwards took out, with, I should think, nearly as much honey as the box; but, as it was not weighed, I cannot give the exact amount.

At a subsequent period, owing to some repairs, I had an opportunity of inspecting some of the deserted spaces (south aspect), and found the foundations of old combs extending in stretches five to six feet in length.

My roof bees still prosper, their work being chiefly transferred from the rough Memel beams on which they started, to the shallow bar-hives and bell-glasses of the present day.

In bringing these remarks to a conclusion, extending to a length not at first contemplated, I may remark, that being but a recent subscriber, I do not know if they are of a nature to interest your readers; but may by-and-by send you some sketches of hives used by—A RENFREWSHIRE BEE-KEEPER.

diversity of colour and the contrasts of clear scarlet with white are more conspicuous in the older seedlings, or those of ten year's standing and under. But as there are many good ones among these which I have neither grown nor seen much of, I do not like to pass them in a selection, or give a second list of superior kinds of older birth without them. Therefore I shall put them off till next season, when I expect to get up my acquaintance with them to the top of their peerage; and after that I mean to register their births and deaths, or the ups and downs of the various and versatile shades and stripes on their banners, after the manner of "Hardwicke's Shilling Peerage;" and shall only mention a few more to-day which are well known to most growers and very desirable for new beginners.

Magnificus, or magnificent, would make a splendid crimson bed of itself—a tall, strong, handsome grower; or *Vesta*, the tallest white I know, in the centre of a bed of *Magnificus* would make a telling contrast. *Formosissimus*, *Insignis*, and *Imperialis*, are three shades of scarlet and crimson which would match well together. *Count de Morney*, again, among the newest ones, makes a splendid mass of itself, a cerise or cherry colour shaded with violet and a white throat, than which nothing is more gay or rich in a mass. For a light mass or bed, one that is neither new nor very old, and called *Danaë*, is among the showiest. It is a larger flower, and has a longer flower-spike than any of the breed of *blandus*; and there is a fine drawing of it in the "Illustrated Bouquet," to show the superior style of whites from *oppositiflorus* blended with the lighter seedlings of, or from *Natalensis*, without a particle of the orange which *Natalensis* has brought into the family.

It is the blending of this orange in *Natalensis* with the salmon, red, crimson, or scarlet in the older kinds, that has made the new seedlings of Suchet so rich and valuable in collections; and we shall never be able to beat him with English seedlings. We may get as good kinds in his circle as are yet in being, and, perhaps, some improved tints; but we have lost our name in that branch as surely as we have in Roses, and these foreigners will keep us at long-range distance to the end of the chapter. The only thing we can guard against, and the very thing that I wish to press forward is this—we can keep out of the foreign market if we choose to go the right way to work, except for the very best of their new seedlings, just as we manage with Roses. All the kinds from *cardinalis* come into bloom with the summer Roses, if we plant them at the proper time—not later than October. And all the breeds from *Natalensis* will be our Hybrid Perpetuals to bloom from June to October, if we mind to plant them from early in February to the middle of May.

Then, the question is, Why should we plant them at all, or rather plant them but once in a lifetime? If we plant them six inches deep, they will prove as hardy as the European kinds; and we know very well that if we move them and part them every year, nine people out of ten will never do much good with that way, except in pots, while on the Continent they ripen so much more that they can take them up and divide them every year, as they do Hyacinths and Tulips. The breed from *cardinalis*, *blandus*, and other old African kinds, was certainly more tender than the present run in the market, yet they lived out of doors, in the north of Scotland, for years and years—the older they were the better they would bloom. I had them myself as free and as numerous as Crocuses, in all kinds of soil, in shrubberies, and in American beds, where they did equally well; but in peat they increased the faster. When a border was trenched, or the masses were otherwise disturbed, the plants did not bloom nearly so strong the next year, and many of the kinds did not come up to their full vigour and stature till the third season after transplanting. I have not had such intimate acquaintance with the new races; but if they will improve with age, without disturbance—and I can see no reason why they should not—they must be grand indeed. However, I would advise that

you make sure of the game first, by getting the soundest bulbs in the market as early in the spring as possible, and pot them all before February is out. Treat them the first year in large pots exactly like the Japan Lilies, to the end of the season. Keep them in the same balls the whole of next winter, and go over them the following February, breaking off the ball carefully from the top till you are level with the bulbs; then extract a couple of the largest bulbs, to be put singly into fresh soil and new pots. Keep the rest and the bottom of the ball undisturbed, and plant the whole lump together in your best American bed, and so as to have six inches deep over the crown of the roots; and in two or three years, it strikes me, they will be the talk of that part of the country, for very few have yet seen *Gladioli* in one-third perfection. Before they are thus planted out, the grand secret is not to have them one day out of the soil longer than it is natural for them to begin to root.

D. BEATON.

VEGETABLE PROTECTION.

WHAT a strange difference exists in seasons! In some winters we have no frosts until January; in others we have no frosts at all worthy of notice; and in others beginning with all the aspects of December even in October. The latter is the case with the present season; for we had a frost of singular intensity for the period here (Oulton) for two or three days—the lowest reading of the thermometer being 14° . This was even in the third week. Previous to that I had a vegetable garden the highest in good produce that I have known here—everything was in such high vigour; but such a slaughter at that period I have never known. The fact is, that the higher the culture the more they suffer. About a week after its cessation the vegetables in general presented a January appearance; and it was scarcely possible for the oldest practical man to fancy the period not far from the middle of October.

If I could have known I should have covered up the ordinary vegetables—such as Broccoli, Celery, and the like; but had any one done so by anticipation, his friends would have taken the sanity of his mind into consideration. Even beds of autumn-sown Cabbages were totally killed, and Lettuces in seed-beds.

As to the latter frost, with which every gardener and amateur is but too familiar, it has been extraordinary. I find by my record, that, taking one week and making averages, it runs 20° of frost—albeit, the lowest was 28° . We have two thermometers outside, one against the other (and they were both the prize thermometers of the first Crystal Palace Exhibition); they generally agree in two different situations. But it still continues (December 20th), and there is little prospect of any change. The consequences will be very considerable, and I do not expect to find a really sound vegetable in the spring.

We may here remark on the entire absence of snow; for we have had none here. This it is which is so serious to vegetables; for if we could command snow at will it would be well in the advance of a severe frost to see the vegetables covered with a thick layer of it. This is so far a protector as that it prevents the access of extreme depressions of temperature, and also shelters their heads from cutting winds.

And what can we do in these extreme cases? We cannot undo what is done; but as to the future? Nothing but use litter at once; so that, if one of those intermissions of thaw and sunshine occur, they may not be made worse still by the rapid transition. Our cooks meet us at the same point here by thawing their frozen vegetables in the coldest water; in fact, slow thawing. But with growing vegetables it may be much slower still.

The principles of protection deserve a full consideration by amateurs and young beginners. I have had Cauliflowers under glasses covered up for nearly a month at a time, and suffered not; but they were frozen before covering (for this is the secret), and then covered thickly with litter. I believe that we are none of us aware of the great length of time plants will bear this practice; I think it not improbable for a month, provided the essential conditions are sustained. Therefore, my advice is, suffer the early frosts to freeze your soil at least an inch in depth, and then apply a thin protection at first. This will much screen them; but if the frost increases much in severity, apply additional covering in a liberal way. By this time the ground is probably frozen gradually to the depth of nearly three inches, and so much the

better for most things under this course of treatment. They will now be what I must call sound asleep; and, depend upon it, they will nap a long time indeed. All the growing becomes entirely stopped; and as for damp air, none is generated, or else it is soon locked up. But the plants must not be uncovered on account of any temporary thaw.

Again, at the end of a frost, when plants have been kept in darkness for a good while, much caution is necessary to inure them to the light. Gardeners and others who appreciate this principle use some caution in this respect as to plants received from distant nurserymen, and which are generally packed closely under a canopy of mats, excluding light. If these were to be placed in a sunny situation the moment they were unpacked, after being closed up in darkness for several days, they would be seriously injured, although they might not show it for a week or two. But how much worse would it be with vegetables, covered perhaps for weeks, if exposed the moment a thaw comes? And this would be more than a case of the sudden influence of light; the sudden thawing which I before alluded to has to be added.

I have had plants remain covered for three days after a thaw commenced, and at the expiration of that time only half the litter removed, the other half in three or four days more. I have had Endive this autumn, covered with litter up to this time since the first night of the October frost before alluded to, not uncovered; but the covering is new straw, and not very thick. It is looking very well in defiance of the frost.

This Endive is planted close at the foot of the walls nearly all round the garden, except the cold aspects, and it is extremely useful. It is so close, in fact, that it is beneath a projecting coping of nine inches. This is an old plan; and when I was serving my apprenticeship, my old master, an excellent gardener, used to practise it; but he did what I have not done, and I can scarcely say why I have not. He used to make us soil or earth it all, and well it answered. About the end of October, the plants having then good hearts, they were each gathered together, every leaf in its place, after the manner of Celery, and then well packed up with soil. Finally, a little straw was put on them, and attended to. In hard frost I have seen the kitchen server digging them up like Potatoes, and although pitiful-looking outside, when their hearts were unpacked they were excellent.

I had last autumn some hundreds of Lettuces from a rather late sowing, and at the first frost in November a thin sprinkling of clean new straw was shaken over the beds, and there it remained until the end of February—never removed. I am not aware that I ever knew Lettuces better preserved. But then the straw was rather thin, and, being very hollow, the air could circulate freely, and they would have a moderate quantity of light.

Let me advise all who regard the preservation of such things to avoid using the long litter from the stable-door. I have myself had vegetables spoiled by it. The ammonia, &c., washing out, does more harm than the frost would have done. Litter to cover with in the beginning of winter cannot be too fresh. Indeed, I find nothing equal to Wheat straw of the last harvest.

R. ERRINGTON.

CONVERTING PART OF A GREENHOUSE INTO A STOVE.

WOULD you oblige me by stating whether I could convert eight feet of an old greenhouse, twenty-four feet by twelve feet, into a stove, heated by a brick flue round the house, by a division, using a cross-flue at the division and two dampers, to prevent the greenhouse being warmed except at pleasure?—A. K.

[Your plan will answer very well, with moderate care in management. You might even take your flue and return it in the middle of the eight-foot space; and that would supply you with bottom heat, either by means of a chamber or covering all over with rough stones and clinkers, and then clean gravel and sand. For propagating purposes this would be advisable. You might, however, make a small propagating-pit over the present flues, and use the centre for established plants.]

STOCKING A GREENHOUSE.

"I AM an enthusiastic amateur, living at, perhaps, the worst suburb of London for successfully following my *penchant*; having to battle against smoke, confined atmosphere, and fog, which

latter favours us more here than the aristocratic west, from the proximity to the Essex marshes. I want to fill my greenhouse with about a hundred more hardwooded plants; but as the kinds which might reasonably be expected to succeed are limited in number, I request you will, with your usual courtesy and kindness, run your eye over the list herewith, of which I have a duplicate, and give me the numbers, as I fear it would take up too much room to print the names of those which are hardy and easily managed, and most worth growing; and separately, those not quite so handsome, but still hardy. You will see that I want a thousand strings of figures, so that if I exhaust the best kinds I may fall back on the second best.

"Please do not forget the drawbacks I have to contend with, and make the selection accordingly. The temperature of the greenhouse ranges in cold weather from 38° to 42°, but occasionally—in the late cold weather, for instance—has been down to 35° twice, owing to absence from home during the day.

"I have many plants doing well; among them are *Acacia armata*, *lineata*, *Olea folia* and *elegans*, *Cassia floribunda*, *Correas*, *Azaleas*, *Chorozema cordata* and *Chandlerii*, *Bossia Hendersoni*, *Plumbago Capensis*, *Eutaxia myrtifolia*, *Cytisus*, *Eriostemon*, *Hovea purpurea*, &c.

"If you would likewise give the names of some *Acacias* easily procurable, with simple leaves, as the pinnated kinds lose their foliage, you would much oblige."—J. M.

After pondering the matter over, I think it will serve your purpose and that of our general readers best, by throwing your list and some additions into separate groups, somewhat according to the management they will require.

HARDIEST GROUP UNDER THE CIRCUMSTANCES.

<i>Abutilon striatum</i> , venosum.	<i>Kennedya nigricans</i> , Marryattæ, prostrata.
<i>Acacia grandis</i> , elata, angulata, falcata, taxifolia, juniperina.	<i>Lachnæa purpurea</i> , luxifolia.
<i>Adamia versicolor</i> .	<i>Lantana mutabilis</i> , crocea.
<i>Andersonia sprengeloides</i> .	<i>Lotus Jacobæus</i> .
<i>Beaufortia decussata</i> , Dampieri, splendens.	<i>Linum flavum</i> , trigynum, suffruticosum.
<i>Bellardiera splendens</i> .	<i>Magnolia fuscata</i> , pumila.
<i>Brugmansia Knightii</i> , suaveolens, lutea, atro-purpurea (these strong softwooded plants).	<i>Mahernia incisa</i> , grandiflora.
<i>Cassia corymbosa</i> .	<i>Mandevilla suaveolens</i> (climber, strong).
<i>Coleonema rubra</i> , tenuifolia.	<i>Manglesia glabrata</i> .
<i>Convolvulus Canariensis</i> , cneorum.	<i>Melaleuca lanceolata</i> .
<i>Crotolaria argentea</i> , and others.	<i>Mirbelia Baxterii</i> , grandiflora.
<i>Diosma amœna</i> , cordata, rubra, virgata.	<i>Myrtus Backhousiana</i> .
<i>Daviesia latifolia</i> , virgata.	<i>Mitraria coccinea</i> .
<i>Diplacus puniceus</i> , grandiflorus.	<i>Olea fragrans major</i> .
<i>Dryandra obtusa</i> , prostrata.	<i>Othonna perfoliata</i> .
<i>Escallonia macrantha</i> .	<i>Passiflora racemosa</i> , cœrulea, Colvillii.
<i>Fabiana imbricata</i> (do on a wall)	<i>Pimelea decussata</i> .
<i>Fagelia bituminosa</i> .	<i>Pittosporum angustifolium</i> .
<i>Edwardia Macnabiana</i> , &c.	<i>Platycodons</i> (hardy).
<i>Grevillea acuminata</i> , &c.	<i>Platylobium triangulare</i> , Menziesii.
<i>Genista Canariensis</i> .	<i>Phyllocladus rhomboidalis</i> .
<i>Goodia latifolia</i> , pubescens, &c.	<i>Pronaya elegans</i> .
<i>Habrothamnus fasciculatus</i> , elegans (best up a pillar).	<i>Prostanthera violacea</i> .
<i>Hermannia alnifolia</i> , incisifolia.	<i>Protea acuminata</i> , argentea.
<i>Hibbertia Cunninghamii</i> , grossulariæfolia, Readii.	<i>Rhyncospermum jasminoides</i> .
<i>Indigofera australis</i> , decora, lotiodes.	<i>Sprengelia incarnata</i> .
<i>Jacksonia floribunda</i> .	<i>Swainsonia galegifolia</i> , coronillæfolia.
<i>Jasminum grandiflorum</i> , Bidwillianum, gracile, dianthifolia.	<i>Tecoma jasminoides</i> .
	<i>Thea bohea</i> , viridis.
	<i>Tristania nerifolium</i> .
	<i>Virgilia obo cordata</i> .
	<i>Witheringia crassifolia</i> .
	<i>Witsenia corymbosa</i> . (More herbaceous than hardwooded.)

These will be the most easily grown under your circumstances, and will suffer comparatively little from smoke or fog if the syringe is used pretty freely when the plants are growing, and care is taken to give most air in fine clear days, and to put on a little fire in foggy days in winter, even if the air should be sifted through thin muslin. Most, if not all of them, will grow in sandy loam and a little peat, and will find no fault with the temperature of your house. The next group is more select, and

will require much more care in watering, air-giving, and general management :—

Aotus gracillimus.
Aphelaxis macrantha, *purpurea*, *humilis*, *sesamoides*.
Boronia serrulata, *denticulata*, *ericifolia*, *cordata*.
Bossia taxifolia.
Brachysema latifolium.
Chorozema varia, *ilicifolia*, *Henchmanni*, *Dicksonii*, *varia nana*,
varia rotundifolia, *varia grandiflora*, *spectabilis*.
Crowea saligna, *elliptica*.
Correa speciosa, *pulchella*, and hybrids.
Callistemon lineare.
Gardoquia Hookeri, *Gilliesii*, *discolor*.
Hovea Celsii, *lanceolata*, *splendens*.
Epacris (of sorts).
Erica (of sorts).
Eriostemon buxifolium, *intermedium*, *neriifolium*.
Genetyllis tulipifera.
Hardenbergia Comptoniana, *ovata*.
Hedaroma tulipifera.
Lapageria rosea.
Kennedya rubicunda, *inophylla*.
Lalage Hoveæfolia.
Leschenaultia formosa, *biloba*, *oblata*, *splendens*.
Loddigesia oxalidifolia.
Pimelea spectabilis, *Hendersonii*, *rosea*, *intermedia*.
Phænocoma prolifera.
Roella ciliata, *elegans*.
Pultenaea stricta, *retusa*.
Statice Dicksonii, *suffruticosa*, *herbaria* (more than woody).
Telopea speciosissima.
Templetonia glauca, *retusa*.
Tetratheca verticillata, *ericæfolia*, &c.

Most of these must be grown in well-drained pots, and chiefly in sandy peat, tolerably rich, and kept open with bits of charcoal. The plants should have full exposure to light, and a free circulation of air even in winter, if a small fire should be put on to enable you to do it. The temperature of 40° will prevent them being injured at that period, if previously healthy and robust. Water must be given them with great care. The good drainage should prevent the plants ever being waterlogged, and the ball must never be allowed to get very dry in the interior, or the plants will most likely go. The chief thing, however, is the air in winter and spring. A little fire will disperse and keep fogs pretty well out of the house; but the great thing is to prevent them, and soot and smoke from getting in. For this purpose I would recommend all the ventilating openings to be covered with fine woollen netting, or fine cotton muslin. These may require to be frequently changed or washed after they get dirty and clogged up with sooty particles. I would use something of the same kind all the summer. The air may just be admitted then all the more freely, and the paths and stages kept moist to prevent the air being too dry. All the plants will agree with the temperature you mention in winter, allowing 10° or 15° rise from sunshine. The following, however, even in winter, should stand at the warmest end of the house—*Aphelaxis*, *Boronia*, *Chorozema*, *Crowea*, *Hovea*, *Roella*, and *Tetratheca*. When the plants are opening for bloom the temperature should seldom be below 45°. When such plants as *Croweas*, *Boronias*, &c., have done flowering, are pruned, and making their wood, a closeish, moist atmosphere, and a temperature averaging 60°, would suit them best, taking care to get the wood well hardened before autumn. The same, though in a less degree, may be said of *Epacris*, *Hovea*, *Chorozema*, &c.

I think the following in your list will not suit your purpose, and several of them are softwooded:—*Balsamina latifolia*, a Balsam that will scarcely survive the winter under an average of 45°, and would like 50° better. *Burchellia Capensis* ought at least to have from 45° to 50°. *Cestrum aurantiacum* will require that to open its blooms. *Coleus Blumei* cannot be kept in winter at much under 55° and dryish, and in small pots then. It is a soft herbaceous-like plant. *Ipomœa Learii* will do best on the rafters; but it should rarely be below 45°, and even at that will lose most of its leaves, but that is of no consequence if the shoots and buds at the base are safe. *Lagerstrœmia Indica*; this beautiful plant might be kept all winter in your house at the warmest end in a deciduous, rather dry state; but you could only expect to flower it nicely by pruning the shoots well back, and then giving the plant by degrees a tropical temperature. *Mauraltas*, *Spiranthera*, and *Thibaudia* are too tender for your circumstances. R. FISH.

FORMING PLANTATIONS

OF EVERGREENS AND DECIDUOUS SHRUBS FOR PICTURESQUE EFFECT.

It is beyond a doubt that a large number of men who call themselves gardeners are deficient in the knowledge of those artistic rules which distinguish the practitioners of the art of landscape gardening. Excellent as may be the qualifications of a gardener in a sound practical sense, acute as may be his perceptions of the useful—if he has not associated with those some appreciation of the beautiful, he may be fit to carry out a garden design, but is not qualified to arrange that design. It is not, indeed, to every man that the eye of the artist is vouchsafed, nor is it every man who is born to be a Kemp or a Milner; but it is the duty of every man who undertakes to form garden grounds to make himself in some measure acquainted with first principles.

One thing has repeatedly struck me as a lamentable error most frequently committed. I allude to the indiscriminate mixture of shrubs and trees all over a place, instead of passing from one kind of form to another. This, which is intended to produce variety, most fully results in producing what is quite the contrary—viz., the most perfect monotony. Supposing a place to be planted with three kinds of trees—say, Elm, Beech, and Oak, how different and varied would be the expression if, instead of being regularly mixed, one passed from the Elms to the Beeches, and finished with a grove of Oaks. In all these trees we have an individual and collective character of distinctness, which when massed together yields a most agreeable different expression.

Shrubberies depend much for their effect upon their beauty of outline; parts of them should always be massive and imposing, while the details may be as varied and as intricate as possible. But as parts of a garden, the plants should not be allowed to assume the picturesque style; but each plant should, in itself, be perfect, or in what Loudon happily designates as “the Gardenesque style.” In the woods and forests one admires every picturesque combination, and even in gardens an occasional natural group may be permitted; but a garden is truly and essentially a work of art, and all within it is within the pale of artistic management: therefore, it should have the general expression of being such a work. This should be the rule; the natural features are not inadmissible, but they are the exceptions.

It is amusing to see the difference of effect which can be produced by various arrangements of plants according to the taste of the disposer; and there is no branch of gardening that affords greater opportunities for the exercise of talent than this. The arrangement of the shrubs at the Crystal Palace is charmingly done, and will at some future day show itself as an illustrious example of the taste of Mr. Milner, to whom, I believe, the details and finish of the work were left, and to whom I heartily wish success in the course he is now pursuing—viz., that of a landscape gardener.

Perhaps there is no class of plants which offers such facilities for variety as our evergreen shrubs. We have among them every shade of green, with great diversity of habit. We have spiral forms in the Cypress, Junipers, red Cedars, and *Arbor vitæ*. Depressed and creeping forms in the prostrate Junipers, Savins, &c. Light-flowering and graceful forms in the Cytisuses, and Brooms. Fine dark masses of foliage in Yews and Portugal Laurels; while the pendulous Cypresses are many of them exquisitely beautiful, particularly *Cupressus Lawsoniana*; and we have much to anticipate from *Cupressus funebris*, if it be ever likely to assume the beautiful form we see in our “Willow pattern” China plates. Added to those already mentioned, we have our fine Rhododendrons blushing in their radiance of purple, white, and scarlet, and giving us in winter a cheerful bank of evergreen to look upon.

Of the common Laurel I cannot say much, but will repeat an observation of my friend, the late Mr. Gilpin, upon it. “It is,” said he, “a nasty, saucy, obtrusive thing, and far inferior to the dark tone of the Yew and Box. Get rid of it all you can, and you will do well.” For my own part I cannot but think that there was justice in the remark of Mr. Gilpin, and that its vivid green is almost too outrageous to be much admired.

The varieties of Berberis are beautiful evergreens, pretty in their fine, glossy, dark foliage, and pretty when arrayed in their gorgeous yellow flowers. They form, also, very charming front borders for shrubberies, and, kissing the turf as it were, are an invaluable finish.

One great point which the artist who desires to produce variety in his grounds should attend to, is not to sprinkle the place all over with Rhododendrons or Berberis, or, indeed, anything else which may, nevertheless, come under the term rare and beautiful. But these things introduced sparingly, *but in large masses*, are very telling, and produce what is sought for—decided relief from monotony, giving a charming variety. Let us for a moment conceive a place where Rhododendrons are regularly scattered from end to end, and contrast this with one which has only a few fine masses of them. Which would be more effective, and have the greater charm?

Were it possible, I have long thought I should like to form a garden for the season; and what could be more lovely than an evergreen garden in winter? Fresh, green, and fully exuberant, it would indeed be a charming feast for the eyes and mind. Repton says that “the eye, or rather the mind, is never long delighted with that which it surveys without effort at a single glance, and therefore sees without exerting curiosity or interest. It is not the vast extent of lawn, the great expanse of water, or the long range of woods that yields satisfaction; for these, if shapeless, or, which is the same thing, if their exact shape is too apparent, only attract our notice by the space they occupy. To fill this space with objects of beauty, to delight the eye after it has been struck, to fix the attention where it has been caught, to prolong astonishment into admiration, are purposes not unworthy of the greatest designs.”

Let us then remember that, although extent in a place yields us a certain emotion of satisfaction—though it may at first strike the eye and rivet the senses—yet it is not satisfactory if the details are not put together in an interesting manner. For this reason we often see small places decidedly beautiful as compared with those of much larger scope. I speak not here of the commonplace sight-seer, but of those who have been educated in the first principles of the art of landscape gardening; and who have, by long study and practice, sought out all the salient points of excellence, and have fully established themselves in the principles of correct “taste.”

HENRY BAILEY, *Nuneham*.

MEETING OF THE ENTOMOLOGICAL SOCIETY.

THE first meeting of the Entomological Society for the present year was held on the 2nd of January; and, as might be expected at this season of the year, the attendance of the members was not so numerous as usual. The chair was occupied by J. O. Westwood, Esq., M.A., F.L.S.

A box of interesting insects of various orders, containing several beautiful new species collected in Siam by M. Mouhot, was exhibited by Mr. S. Stevens.

Mr. Grove exhibited a specimen of *Libellata pectoralis*, a species of Dragon-fly new to this country, which he had taken near Sheerness in June.

A new part of the Society's “Transactions” was announced as ready for delivery to the members; and notice was read of the alterations proposed to be made in the lists of the Council and officers at the anniversary meeting for the year ensuing. Messrs. Baly, Smith, Waterhouse, and Pascoe to be removed from the Council; and Messrs. Douglas, Saunders, F. Walker, and Westwood to be elected in the Council in their stead; and Mr. Douglas to be proposed for President in the room of Dr. Gray.

Mr. Westwood exhibited a small lepidopterous larva having sixteen legs, which he had received from a correspondent, who, whilst asleep, had been aroused by a smart bite inflicted on his instep (followed by a wheal), and who, on examining the part affected, discovered the larva exhibited. Mr. Westwood observed that, although some lepidopterous larvæ were known to be carnivorous and to feed on animal matters of various kinds, and many of them in confinement would devour other larvæ, yet (taking it for granted that the specimen exhibited was the real culprit in this case), this was the first instance he had heard of one of them attacking the living human body. The larva appeared to be that of one of the Tineidæ, or Clothes' Moths; but there was not any appearance of a moveable case in which it might have resided.

Mr. Westwood also exhibited an elytron, or wing-cover, of a common English Beetle (*Broxus cephalotes*), forwarded to him by Sir Charles Lyell, who had sent it as that of a fossil Beetle, having obtained it from Mundesley, in Norfolk, from a formation containing fish remains, determined by Agassiz to be those of extinct species, although associated with recent shells. Mr.

Westwood, however, was of opinion that the elytron was a recent one, exhibiting no traces of fossilisation, and that it was not difficult to account for its being found in such a situation, as the species is common under marine rejectamenta on the coast; and it might easily be supposed that the working of worms might have carried down an article so small as the elytron of this Beetle. The fact, however, possesses a certain amount of interest in connection with the question of the flint arrowheads in the drift, which is attracting so much attention at the present time.

Dr. Allechin exhibited a small brass flask, about two inches high, constructed for introducing small quantities of chloroform into pill-boxes containing living Lepidoptera, for the purpose of stifling them; he and other entomologists having experienced much inconvenience in using chloroform for this purpose when engaged in collecting. The instrument exhibited was calculated to remove all difficulty, as by it a single drop could be obtained without any risk of spilling or evaporation. This mode of applying chloroform has indeed been found very beneficial, and has removed the chief charge of cruelty against the insect collector.

NEW AND RARE PLANTS.

GRAMMATOPHYLLUM SPECIOSUM (*Showy Grammatophyllum*).

THIS gigantic Orchid has for the first time been bloomed in full splendour by Mr. Carson, gardener to W. G. Farmer, Esq., of Nonsuch Park, Ewell. It bloomed last October. Its pseudobulbs are nine feet long, its flower-scape six feet!—flowers in panicles, each flower six inches across, yellow, and richly blotched with deep red purple. It is “queen of orchideous plants.” Native of Java and other islands of the Indian Ocean.—(*Bot. Mag.*, t. 5157.)

STATICE BONDUELLI (*Bonduelle's Statice*).

Found by M. Bonduelle in North Africa, and sent to Kew by Mr. Thomson, of Ipswich. Flowers yellow. “One of the prettier of a very pretty genus.” Flowers during the summer months in a greenhouse.—(*Ibid.* t. 5158.)

LLAVEA CORDIFOLIA (*Heart-leaved Llavea*).

One of the most beautiful and most rarely-cultivated of Ferns. Native of Mexico. Requires a warm greenhouse.—(*Ibid.* t. 5159.)

BEGONIA FRIGIDA (*Frigid Begonia*).

A very dwarf species. Leaves coppery-green above, and deep rosy-red beneath. Flowers white and insignificant.—(*Ibid.* t. 5160.)

DIDYMOCARPUS PRIMULEFOLIA (*Primrose-leaved Didymocarpus*).

Native of Ceylon. Flowered at Kew in November, 1859. Leaves very hoary. Flowers pale lilac, in small cymes.—(*Ibid.* t. 5161.)

NEW OR RARE SOFT-WOODED HERBACEOUS AND VARIEGATED STOVE PLANTS.

(Continued from page 141.)

ACHIMENES GIGANTEA IGNEA.—Amongst a host of so-called new Achimenes, this variety is a handsome distinct one. Leaves shaded with light and dark green. Stems two feet high. Flowers produced from the axils of the leaves, tubular in shape. Shaded crimson ground spotted with scarlet. Season for blooming, September and October.

A. LONGIFLOEA PLENO.—A double Achimenes, with large porcelain blue flowers. Blooming through the summer months.

AMARANTHUS VARIEGATA SPLENDENS.—A magnificent variegated-leaved, soft-wooded plant. Leaves six inches long, two inches and a half broad, marked with scarlet, yellow, and green in equal proportions.

BEGONIA AMABILIS.—This variety is more compact and dwarf than *Rex*. Leaves obliquely ovate, shining dark green, with a belt of silver between the margin and the midrib. The under side is red opposite the green upper side.

B. ARGENTEA.—The leaves of this plant are uniformly silvered all over, excepting a few points of green. The ribs are of a clear straw colour. It is very beautiful.

B. BLANDA.—As its name imports, this variety is charming. The leaves are of medium size; the margin and near the veins are olive green spotted with white, the space between is pure silvery white.

BEGONIA CHARLES WAGNER.—A dwarf, small-leaved kind. The leaves have a kind of star of silver in the centre, bordered with crimson, which, as the leaves are fully developed, changes to a rich olive green. The rest of the leaf is silvered over in a Vandyked style. The border is also dotted with silver. Very distinct and beautiful.

B. GEM.—The smallest of the tribe, the leaves being only three inches long, shortly ovate. They are of a pure silvery grey, with a margin of dark olive green, and the centre a well-defined green star.

B. LEOPOLDII.—Leaves large, obliquely ovate, dark shaded green, with red margin and crimson centre. The whole covered with crimson hairs. The flowers are also handsome, being large and of a pretty pink colour.

B. MARSHALLII.—A large-growing, handsome kind. I have seen plants of it eighteen inches high, and as much through. The band is broad, well defined, and pure silvered white, showing the dark veins distinctly; margin dark green, blotched with silver. Very beautiful and distinct.

B. QUEEN VICTORIA.—Medium-sized. Leaves dark reddish-green along the sides of the nerves; the centres between are of a greenish grey blotched with silver. A handsome variety, or probably species, from Assam.

B. XANTHINA LAZULI.—This is a remarkable kind, with leaves like *B. Rex*, but having a purplish metallic hue.

There are many other varieties named, but I think the above are the best, and certainly as many as any collection need have in addition to the older varieties.

CALADIUM ARGYRITES.—A truly beautiful plant, growing in moderate compass, the largest plant I have seen not exceeding nine inches high. Leaves arrow-shaped, four inches long and two inches broad, bright green thickly blotched with large and small spots of pure white. It should be in every collection, however small.

C. CHANTINII.—Leaves rather large, oval, arrow-shaped. The centre and the main veins bright red, the rest green thickly spotted with white. A fine variety.

C. VEITCHII.—The leaves of this remarkable plant have short pencilled stems. They are large, a foot long, arrow-head shaped, with two diverging lobes. The upper surface polished dark; the lower dark lurid purple, from which a bronzy metallic tinge is seen through to the upper surface in a certain light. Central rib and main veins from it are ivory white.

C. VERSCHAFFELTII.—Leaves broadly arrow-shaped. Medium size, with a broad blotch of crimson in the centre, and a few angular red spots on the green border. A handsome variety.

GLOXINIA CÆRULEA VARIEGATA.—Ground colour light porcelain blue, distinctly striped with white, and mottled on the upper lobes; the throat blotched with white flakes. Good size, form excellent.

G. MADONNA.—Form and substance good; pure white blooms minutely fringed on the margin, creamy yellow tube, violet crimson belt, and the front lip marked with an elegant band of rose.

G. SCHOLASTICA.—Large pink-coloured flowers, of good form, substance, and outline; tube white. A distinct, good variety.

G. SEBASTIANO.—A beautiful, deep salmon-coloured flower; white tube spotted with red. On the lower surface of the tube there are long side-belts of violet crimson. New in colour, and a large, handsome, well-formed variety.

G. SPAGNOLETTI.—A very large salmon rose-coloured flower, nearly three inches wide, with pure white throat; the marginal lobes semicircular. A truly noble variety.

G. STRIATA MACULATA.—Flowers above medium size, well formed, and drooping. Colour a rosy salmon, mottled with white on the upper lobes. There are also three white stripes radiating from the throat to the margin. A beautiful, very distinct variety.

GONOTANTHUS CUPREUS.—A stove perennial of compact habit. Leaves long, ovate, peltate—that is, the leafstalk is in the centre of the leaf. Leaves purple on the under side, smooth and deep green on the upper side, having a reddish coppery shade. Very rich. A desirable beautiful-foliaged plant from Borneo.

MACODES PETALA.—This is allied to the richly-foliaged genus *Anectochilus*, with oval leaves of a shaded green, richly veined and ribbed with glittering gold. A dwarf-growing gem. Native of Java.

MARANTA FASCIATA.—A dwarf, compact, stove perennial, with smooth, shining, roundish-oblong leaves, dark green obliquely banded with white.

MARANTA PORTEANA.—Leaves smooth, shining, oblong, and painted green, with white bands above and purple beneath. A handsome addition.

M. PULCHELLA.—Leaves medium size, delicate green, rayed on each side with dark velvety green. This is a pretty, graceful plant, not unlike a miniature *M. zebrina*.

POGONIA DISCOLOR.—A beautiful dwarf stove plant, with a single ovate leaf somewhat hollowed at the base, the end turned back, and the whole leaf ribbed like a fan. It is of a bronzed green colour, covered with orange-red hair. A native of Java, and a fit companion for *Macodes petala*, and such-like fine-leaved plants.

STEPHANOPHYSUM BAIKIEI.—A soft-wooded stove plant, with four-angled stems and lance-shaped oval leaves pointed. The flowers are produced in large terminal racemes, funnel-shaped at the top and tubular below, two inches long, and of a bright crimson colour. A fine showy plant from Africa.

TYDÆA ELEGANTISSIMA.—A dwarf kind. Very distinct flowers, with an orange scarlet tube expanding to a lobed salver-shaped limb of a blush salmon ground colour marked with rosy carmine spots and bands.

T. IGNESENS.—Flowers funnel-shaped, and of a brilliant crimson colour, with orange-scarlet lobes spotted with carmine, relieved by a yellow throat striped with scarlet.

T. LADY DIGBY.—This is of a neat, bushy habit, and an abundant bloomer. Flowers crimson, scarlet tubes, with a large rosy lake crimson lobe, fully two inches across.

T. LADY CAROLINE KERRISON.—A tall bushy species with purplish-crimson stems, and leaves with conspicuous nerves on a dark bronze ground. Flowers with bright orange-scarlet tubes clothed with the same coloured hairs. The lobe is two inches wide, and of a light rose colour spotted with violet. An elegant plant.—T. APPLEBY.

(To be continued.)

BEDDING CALCEOLARIA CULTURE.

I SHOULD feel much obliged if you would favour me with advice about my Calceolarias. I had a bed of them last summer, and they did not flower as well as they were expected, and at last they became stagnated. I lifted them up with as much earth about their roots as I could; put them into eight-inch pots; and have kept them in a cold frame ever since. What ought I to do with them now? Keep them as they are till planting time comes and plant them as they are, or turn them out of their pots, and trim their roots, and fresh pot them early in the spring, or strike fresh cuttings from them? They look very healthy.—MOORE.

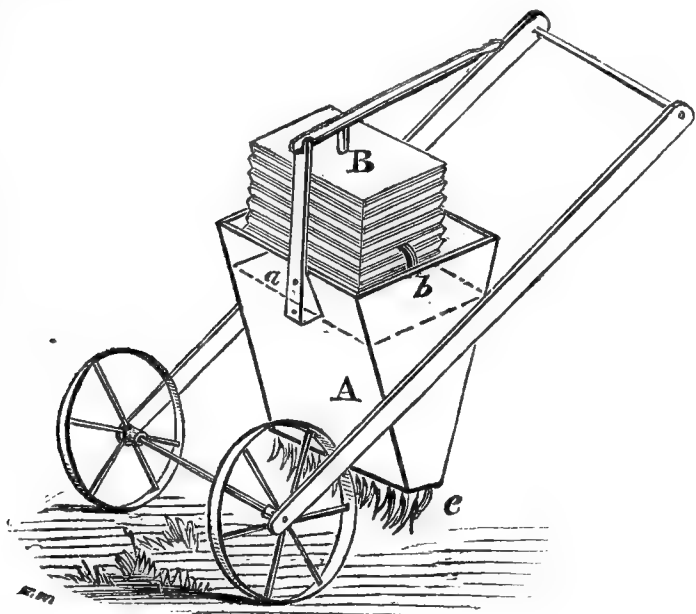
[One cause of the Calceolaria failures we hear of came within our own knowledge. They became pot-bound, or too much cramped at the roots, and the centre of the balls was allowed to get too dry. They were planted out into a cold frame in April, and in the open ground in May; but although they made plenty of new roots in the frame, the centre of the balls was never moist enough. The sap had to pass through the parched parts of the roots or balls so sluggishly, that the hot weather killed many of the plants—they really died by starvation in the midst of plenty. Very many plants perish yearly through the same cause. Keep your good-looking plants in the pots till the roots begin to be crowded outside the balls; then have them well watered, and next day turn them out of the pots in any light soil in the bottom of the frame, or in a sheltered cradle if it is late in the spring; and see that every ball is wet through when you plant them out in the beds. Meantime make a good stock of young plants from them without spoiling your old plants; and when the young ones are well-rooted plant them, without pots, in a close frame, in rows six inches apart and four inches plant from plant; and we will guarantee that not one of the young ones thus treated will flinch next summer. All our own young stock of Calceolarias never get into pots till they are lifted out of the beds in October; and we lose no more than one or two out of a thousand—sometimes not one in a season.]

TREE LABELS.—As the season for transplanting trees in their greatest quantities is approaching, we will give to the readers of the *Artisan* a description of the most simple and yet the most durable label for their trees that we have ever seen presented. And as we have obtained our information from Mr. Peticolas,

the proprietor of the Mount Carmel Nurseries, near this city, and he has had such labels in use for many years with the most perfect success, we think his plan must be valuable. Take for the label small slips of zinc (if it has been exposed to the weather some time it will be so much the better), and write the names upon them with a common black lead pencil, then fasten them to the trees with fine copper wire, always giving sufficient space in the loop for the tree to grow. Such labels will for years be plainly readable.—(*Scientific Artisan.*)

WEED, SEED, AND ANT-KILLER, FOR GRAVEL WALKS AND ROADS.

THE present usual management of gravel walks and roads is very expensive and radically wrong in principle, and is, in fact, a species of cultivation not unlike that of putting in a crop for future growth. First hoeing, then raking, then rolling. First loosening the surface, then raking in the innumerable seeds lodged on the surface, then covering and setting them in with the roller, for a second crop. This is tolerably good culture. If we could regulate the rains to our gravel walks the repeated use of the roller would keep down the weeds and the ant-hillocks to some extent; but it is not often that we can have them in just the right degree of consistency to be benefited much by the roller. Sometimes a month of wet weather, or two months of dry weather, will render the roller useless and inoperative, and, meanwhile, weeds, scattered seeds, and insects, are accumulating. It is next to impossible to keep a walk clean that is not constantly travelled and trampled; and the true principle seems to me to be this—the surface must never be disturbed. Starting upon this presumption several years since, I conceived the use of fire; and after trying a red-hot roller, and a roller with a fire inside it to no purpose, I arrived at the use of fire direct by means of the machine here illustrated.



A is an iron box with a fire-grating at the bottom; B is a double-acting bellows with a wind-chest. In the upper part of box A is a diaphragm *a* through which air is supplied to the fire below; the diaphragm and cover of the box on which the bellows rest being removable for the introduction of fuel. The blast-pipe *b* passes from the wind-chest through a hole in the cover. As soon as the fire is kindled by the action of the bellows, the driver moves forward with the machine, all the while working the bellows with one hand; and the flame, issuing from below, consumes the weeds, seeds, and insects, leaving a clear track behind it. Various kinds of fuel will answer, but those giving much smoke are objectionable. A fan-blower geared from the driving-wheel would be a good substitute for the bellows, but for one objection—where it is desired to move slowly, or perhaps to pause over large weeds, the blower would cease to act, and would require other means and extra machinery to keep up the action; I have not, therefore, yet tried it on this account. In large machines to be worked by a horse, the fan-blower might be preferred to, and cheaper than, the bellows. This machine does not dispense with rolling altogether, though when a road or walk has been purged by fire, instead of disturbing by the

usual treatment, it is obvious that but little rolling will be necessary compared with that ordinarily required. I have tried the machine upon a small scale, and taking a dry time when the surface was covered with little weeds, just starting from the earth, the fire made a clean sweep so that not even a cinder could be observed. It can be carried very close to the surface; and by having guards on either end of the fire-box, it may be run close to box edgings without injury.—CHARLES G. PAGE, Washington, D. C.—(*American Gardeners' Monthly.*)

MYRTLES OUT OF DOORS IN SCOTLAND.

"G. D." will feel extremely obliged if the Editor will say whether Myrtles grow in the open air all the year without protection in any part of Scotland.

[About Rothsay and many other places in the Frith of Clyde, Myrtles and Fuchsias stand out all the winter; but we doubt if such is the case in Ross-shire.]

BEDDING OUT IN SMALL GARDENS.

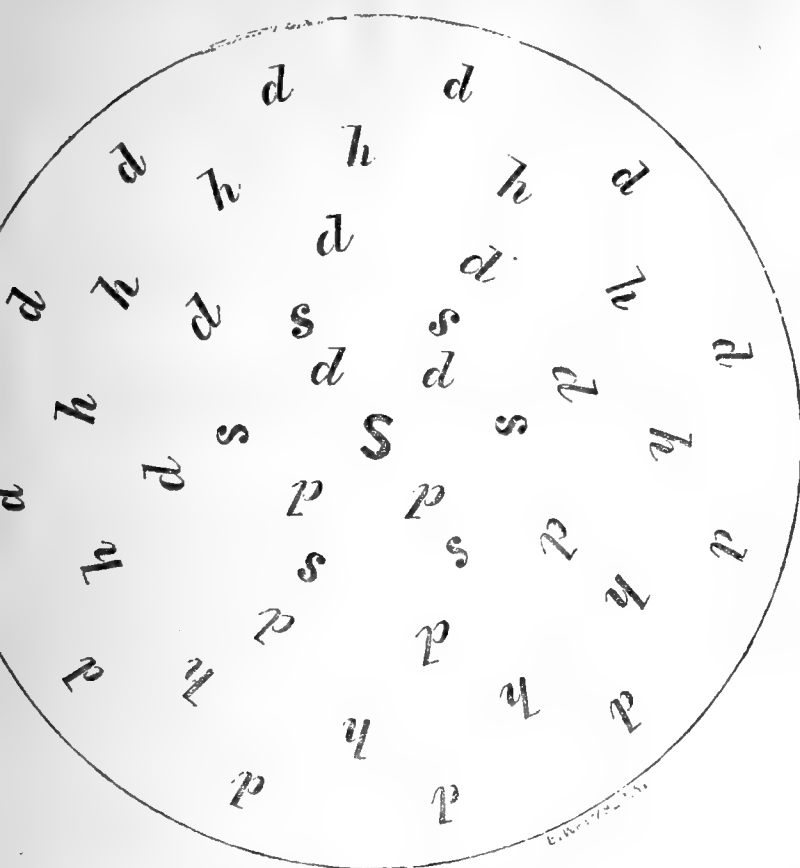
As it is but seldom that we have a description in your pages of the bedding out or planting of small places, I hope that the few remarks which I shall hereafter make will not be altogether thrown away on many of the readers of this paper; for small places are not the localities for the eyes or minds of most of your experienced and scientific contributors to wander in, any more than it would be usual for a now-wealthy gentleman to give you a description of his once-poorer days.

Small places might oftentimes be compared to small puddings. The first glimpse does not satisfy the eye any more than the first cut does the appetite:—this is where the eye cannot scan the whole from one particular spot. Now reverse the picture and take a survey of others, and they will at once present you with a very curious sensation:—the beds are planted (it is almost impossible to tell how), without the least approach to regularity, the combination of colours not studied at all, and often out of character with the place altogether. This is too often the case; and when it is, let the plants be what they will, they will appear nothing more or less than odds and ends.

Did the proprietors or the gardeners of these places read the pages of THE COTTAGE GARDENER weekly until bedding-out time this ensuing spring, they would by that time have gleaned such a mass of information that they would be enabled to make their places wear a different appearance to what they did before, and they themselves would be almost electrified. Even then mixed gardens could not be expected to wear that beautiful peacock-like plumage which Mr. Fish has so enthusiastically portrayed in a late number, and which the flower gardens at Linton Park wore this past summer; for there are several impediments which present themselves to the managers of small places when attempting to imitate the larger ones, the description of some one or other of which we get most weeks. In many instances the space that is allowed for everything together falls far short of the space that is appropriated to flowers alone in many of the large establishments. Then there are the pocket of the proprietor, and the labour the gardener is allowed to help him to carry out his designs, and then the skill of the gardener himself—all of which prove themselves to a certain extent to be impediments.

Casting these aside, let us see how near we can approach on a miniature scale some of those large and most magnificently laid-out places, where myriads of those floral beauties are arranged and planted out yearly in that easy, graceful manner which seems to add new life and vigour to all who gaze on them. As Roses still stand unrivalled amongst out-door flowers, they cannot be dispensed with in a small any more than in an extensive place; but instead of a large rosery of, perhaps, seven or eight hundred, people are oftentimes obliged to be contented with a couple of circle-beds, say about twelve feet in diameter, and in many places with only one. Here I have only one, but I hope very soon to have another. The one that I had last summer appeared at a few yards' distance a gigantic bouquet—rather an uncommon sight in a small place. For a rose-bed to wear this appearance it must not be planted, as many are, with about a dozen or two dozen of half-standards and standards, and underneath them a lot of bedding stuff planted: I think I may call it higgledy-piggledy. It is impossible for a bed of this description to wear a natty appearance at any season of the year; rather than that, it

might be called a bed of confusion. But from the following diagram, perhaps, my readers may be the better enabled to perceive how a circular rose-bed should be planted.



Bed twelve feet in diameter, to contain

Seven Standards. **h** Twelve Half-standards. **d** Twenty-four Dwarfs.

Total number of Roses, 43. If the bed is larger, introduce more; and if smaller, withhold some: this can be easily done without altering the style of the bed in the least. Take away the dwarfs, there is a bed of standards and half-standards. Take away the two last mentioned, there is a bed of dwarfs; but neither of them would form a good bed alone.

The first circle of dwarfs that is against the margin of the bed should be scarlet, or approaching that, as *Géant des Batailles*, *Arthur de Sansals*, *Duchess of Norfolk*, *Etendard des Amateurs*, *Evêque de Nîmes*, *Général Jacqueminot*, *General Simpson*, *Gloire de France*, *Lord Raglan*, and many others there are that might be chosen in lieu of those according to people's fancy. The second circle, which would be half-standards, would tell well in rose selfs or rosy pinks, such as *Auguste Mié*, *Colonel de Rougemont*, *Duchesse d'Orleans*, *Général Pelissier*, *Gloire de Vitry*, *Inermis*, *La Reine*, *Madam Campbell*, *Madame Cambacères*, *Souvenir de Leveson Gower*, *Souvenir de la Reine d'Angleterre*, *William Griffiths*, and *W. Jesse*. The second circle of dwarfs to be of yellows and whites, four of each—*Elise Sauvage*, *Le Pactole*, *Gloire de Dijon*, and *Ophire* or *Adelaide Pavie*, *Deveniensis*, *Mrs. Rivers*, *Souvenir de Malmaison*, and *Madame Masson*, or *Mrs. Bosanquet*. The four dwarfs around the centre standard should be crimson or scarlet, and the centre one *Aimée Vibert*. The other six standards might be of any colour, except that of the centre one. It is no more trouble to plant a bed in this manner than it is to make a mixed medley of it. Every one can judge for himself which will have the greatest effect when this bed has about six or eight inches of *Mangles' Variegated Geranium* as a margin.—A. J. ASHMAN.

(To be continued.)

NOTES UPON FERNS.

TRICHOCARPA MOORII. J. Sm. (*Deparia Moorii*, Hook. *Cionidium Moorii*, T. Moore.) *Fronds* a foot to eighteen inches long, membranaceous, triangular, pedately bi-pinnate, with from five to seven lanceolate-acuminate pinnæ, serrated. *Veins* pinnate, venules anastomosing. *Venules* carried a short distance beyond the points of the serratures, and bearing the sporangia in little cups. *Stipes* slender, dark shining purple. *Rhizome* short, creeping.

This plant has usually been supposed to be closely related to

Deparia prolifera, which is, however, very different in habit and appearance, and in it the veins are simple and free, not anastomosing as in the plant above described.

This interesting and beautiful Fern was discovered by Mr. Moore, the persevering Curator of the Botanic Garden, Sydney, some ten years ago, who, in speaking of it at the time, says he found it "On the ground in a dense wood on the south side of Copenhagen River, New Caledonia." The fronds are very apt to turn black in winter if too damp; it should not, therefore, be syringed on cold days. It obtains its generic name from the resemblance the stipitate sori bear to a small kind of fungus, called *Trichia*. It was very properly named in honour of its discoverer, one member of a talented family who are as much connected with the horticulture of the present day (and particularly so with Ferns), as the Dons were in the last generation.

BLECHNUM GRACILE. Kaulf. *Fronds* fasciculate, smooth, coriaceous, pinnate, upwards of a foot in length, with from eight to ten lanceolate alternate pinnæ; terminal one much longer than the others. *Veins* in the sterile fronds simply forking. *Sori* linear, one on each side the midrib, covered by an indusium which eventually opens on the inner side. *Fronds* produced from the apex of a short rhizome which throws out numerous runners. *Stipes* reddish-brown, slender, with a few scales at the base.

A native of tropical America and the West Indies. In spring this Fern has a most beautiful appearance, as the young fronds are of a bright crimson colour, passing after they have attained their full size to pale green, which becomes darker with age. It has a most graceful habit and is well adapted for general cultivation. It increases freely by means of offsets. It succeeds best grown in the stove, though I have seen tolerable plants in a warm greenhouse.

PTERIS GERANIIFOLIA. Raddi. (Synonymes—*Pellaea geraniifolia*, Fee.) *Fronds* pedate-cordate, deeply divided into five lobes, which are again deeply pinnatifid and cut into lanceolate segments, coriaceous, glabrous. *Veins* forked with free veinlets. The edges of the frond turn back, and so form an indusium for the sori, which grow in lines along the margins. *Stipes* black, shining, produced in a fasciculate manner from the crown, or short erect rhizome.

The dark green shining fronds of this Fern are shaped like the leaves of some of the sweet-scented Geraniums, or "Herb Robert" of our hedge-banks. It is an elegant little thing, never attaining more than a foot in height, and is, therefore, suitable for a Wardian Case. It has a very wide geographical distribution, being found in Brazil and other parts of South America, at the Cape of Good Hope, in Madagascar, and Mauritius, in the South Sea Islands, and in the East Indies. This plant appears in many trade catalogues under the name of *Pellaea*; but there is little, if any, technical distinction between *Pellaea* and *Pteris*, except in the habit. It grows freely from spores. It is somewhat subject to the attack of thrips (as all coriaceous Ferns are more than others), if kept in too warm a temperature. It will succeed very well in a warm greenhouse.—KARL.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 229).

PLUMS.

SYNOPSIS OF PLUMS.

I. FRUIT ROUND.

* *Summer shoots smooth.*

1. SKIN DARK.

A. Freestones.
Angelina Burdett
Corse's Nota Bene
Kirke's
De Montfort
Late Orleans
Purple Gage
Queen Mother
Reine Claude Rouge
Woolston Black Gage

B. Clingstones.
Belgian Purple

Frost Gage
Lombard
Nectarine
Nelson's Victory
Peach
Prince of Wales
Suisse

2. SKIN PALE.

A. Freestones.
Abricotée de Braunau
General Hand
Green Gage
Guthrie's Aunt Ann (?)
Judy Green Gage

Late Green Gage
Reine Claude de Bavay
Yellow Gage

B. Clingstones.
Knight's Green Drying
Lucombe's Nonesuch
McLaughlin

**** Summer shoots downy.**

1. SKIN DARK.

A. Freestones.

Blue Gage
Coe's Late Red
Columbia
Early Orleans
Orleans
Royale
Royale Hâtive
Tardive de Chalons

B. Clingstones.
Black Bullace
Morocco

Peach
Royale de Tours

2. SKIN PALE.

A. Freestones.

Apricot
Denniston's Superb
Drap d'Or
Lawrence Gage

B. Clingstones.
Hulings' Superb
Impérial Ottoman
White Bullace

II. FRUIT OVAL.

† Summer shoots smooth.

1. SKIN DARK.

A. Freestones.

D'Agen
Autumn Compôte
Cooper's Large
Early Prolific
Fellemborg
Fotheringham
Prince Englebert
Quetsche
Red Magnum Bonum
Royal Dauphin
Standard of England

B. Clingstones.
Blue Impératrice.
Cherry
Ickworth Impératrice
Impériale de Milan
Pond's Seedling

Smith's Orleans

2. SKIN PALE.

A. Freestones.

Autumn Gage
Dunmore
Mamelonné
Mirabelle Tardive
St. Martin's Quetsche
White Impératrice
St. Etienne

B. Clingstones.
Coe's Golden Drop
Downton Impératrice
Emerald Drop
Guthrie's Apricot
Guthrie's Late Green
Topáz
St. Catherine
White Magnum Bonum

†† Summer shoots downy.

1. SKIN DARK.

A. Freestones.

Cheston
Damson
Diaprée Rouge
Early Favourite
Perdrigon Violet Hâtif
Sharp's Emperor
Stoneless
Red Perdrigon

B. Clingstones.
Belle de Septembre
Blue Perdrigon
Corse's Admiral
Diamond
Goliath
Isabella

Précoce de Tours
Prune Damson
Winesour

2. SKIN PALE.

A. Freestones.

Blecker's Gage
Gisborne's
Imperial Gage
Mirabelle
Précoce de Bergthold
Washington
White Perdrigon
White Primordian

B. Clingstones.
Jefferson
White Damson

Abricot Rouge. See *Peach*.

Abricot Vert. See *Green Gage*.

Abricotée Blanche. See *Apricot*.

ABRICOTÉE DE BRAUNAU.—Fruit about medium size, roundish, and marked with a deep suture. Skin green, like the Green Gage, covered with a white bloom, and becoming yellowish as it ripens, and sometimes with a blush of red next the sun. Stalk an inch long, stout. Flesh greenish-yellow, rather firm in texture, juicy and rich, with a fine and remarkable piquancy, and separating freely from the stone. The kernel is rather sweet. Shoots smooth.

A most excellent plum. Ripe in the beginning of

September. Its fine sprightly flavour is as remarkable among dessert plums as that of the Mayduke is among cherries.

Abricotée de Tours. See *Apricot*.

D'AGEN (*Agen Date*; *Prune D'Ast*; *Prune du Roi*; *Robe de Sargent*; *St. Maurin*).—Fruit medium sized, obovate, and somewhat flattened on one side. Skin deep purple, almost approaching to black, and covered with blue bloom. Stalk short. Flesh greenish-yellow, sweet and well flavoured. Shoots smooth.

An excellent drying and preserving plum. Ripe in September. It is this which, in a dried state, forms the celebrated *pruneaux d'Agen*.

Agen Date. See *D'Agen*.

Amber Primordian. See *Jaune Hâtive*.

American Damson. See *Frost Gage*.

Anglaise Noire. See *Orleans*.

APRICOT (*Abricotée Blanche*; *Abricotée de Tours*; *Old Apricot*; *Yellow Apricot*).—Fruit larger than Green Gage, roundish, and slightly elongated, with a deep suture on one side of it. Skin yellowish, with a tinge of red on the side next the sun, strewed with red dots, and covered with a white bloom. Stalk about half an inch long. Flesh yellow, melting and juicy, with a rich, pleasant flavour, and separating from the stone. Young shoots covered with a whitish down.

A dessert plum, requiring a wall to have it in perfection, and when well ripened little inferior to Green Gage. Ripe in the middle of September.

Askew's Golden Egg. See *White Magnum Bonum*.

Askew's Purple Egg. See *Red Magnum Bonum*.

(To be continued.)

NOTES ON NEW OR RARE PLANTS.

SIPHOCAMPYLOS AMENUS. *Planch.* Nat. ord., *Lobeliaceæ*. Native of Brazil or Central America, and introduced into this country *via* Belgium.—Subherbaceous, with erect, slightly branching stems. Branches angular, puberulently clothed. Leaves alternate, oblong-lanceolate, acute, narrowed at the base into a short petiole; margins toothed, each tooth glandular. Inflorescence racemose, terminal, bracteate. Bracts linear, or subulate, gradually becoming broader below, until they blend with or become the leaves of the upper part of the stem. Calyx tubular, enclosing the ovary in its lower half; limb composed of five acute, subulate teeth, clasping rather closely; the base of the corolla green. Corolla tubular, rather straight, two-lipped, divided into five slightly divergent segments. Stamens five; filaments connate; anthers slightly bearded.

A very handsome crimson-flowered species of this fine genus. It delights in a light compost of loam and peat, about one part of the latter to two of the former, in which small nodules of charcoal may be freely mixed to secure an equable diffusion of moisture; for stagnation is very disagreeable to it. In the growing season, however, the plant requires a very free application of water. Thrips and red spider frequently attack this species early in the season; but if it is kept rapidly growing in a moist and not very warm stove atmosphere these enemies seldom appear. It blooms in autumn and winter, and though not long lasting it is always bright and pleasing. Cuttings root freely in mild bottom heat in very sandy peat or leaf soil.

MANETTIA CORDIFOLIA. *Mart.* Nat. ord., *Rubiaceæ*. Native of Buenos Ayres.—Suffrutescent, climbing, perfectly smooth. Branches numerous. Leaves opposite on very short channelled petioles, ovate-cordate, acute, often also acuminate, thin, soft, perfectly entire, dark green, and somewhat shining above, paler beneath; veins also prominent there. Stipules two, interpetiolarly, connate with the petioles, subulate, often much reduced. Inflorescence axillary. Peduncles about an inch and a half long, slender, drooping, one-flowered. Calyx composed of four subulate sepals, with a minute tooth in the sinus of each, green. Corolla funnel-shaped, flattened towards the apex on the sides so as to assume a quadrangular form; limb small, of four much-reflexed segments, orange-red, becoming slightly paler towards the base of the tube. Stamens four, alternate with the segments of the corolla; filaments quite absorbed into the tube until near the

apex, when they become free, and support oblong, brown, versatile anthers. Style long, filiform. Stigma green, two-lobed. Ovary two-celled, each cell one-seeded.

This handsome old stove twiner is all but neglected now, yet it is beautiful in flower, and neat and adaptable in habit. Fibrous light loam and peat, with plenty of sand, form a very suitable compost. Its growth is not robust; and it should be cultivated in pots and trained to a balloon trellis, or any other such dwarf support, for unless the house is very small, it is perfectly unsuitable to be trained to the rafters. Blooms in the early winter months, it is therefore valuable in this respect. Cuttings root freely in the ordinary way for stove plants.—S. G. W.

VARIETIES.

THE CURRANT TRADE.—"Some particulars regarding the Currant trade may not be uninteresting to your readers, especially as Great Britain imports more of this dried fruit than all other countries put together; and it has not unfrequently been stated that the Briton's love of plum-pudding not a little enhances the interest he takes in this Ionian colonial possession. England is the Currant market of the world, being a general *entrepôt* from which other countries draw their supplies. The islands of Cephalonia and Zante do not, however, contribute a larger proportion of the crop than two-fifths, the remaining three-fifths being the produce of the Morea. The Currant crop of Cephalonia this year has been unusually abundant, amounting to 13,000,000 lbs., and the prices have averaged from 30 to 35 dols., or from £7 to £7 10s. the 1000 lbs.—a fortunate circumstance for these islanders, who are mainly dependent on this produce for their resources. The export duty on Currants levied by the Ionian State is 18 per cent., while the import duty levied by the British Government is 50, which, together with the 18 per cent. levied at the port of shipment, reaches 59 per cent. on the produce. This exorbitantly high duty on an article of general consumption is anything but encouraging to the trade, and when compared with that levied by other countries who do not profess the principles of free trade forms a very unfavourable contrast. A friend writing to me from Greece gives me the following particulars regarding the exportation of the Corinth Grape from the Morea. The quantity of Currants exported varies as well as the price, both depending on the fertility of the year and the quality of the fruit. In 1858, 62,500,000 lbs. were exported, and it is anticipated that when the disease in the Vines shall have passed away the vintage may be doubled, as, according to the present report, Greece can produce 240,000,000 lbs. of Currants, which are a great deal more than England requires, as it is almost exclusively in England that this article is consumed; but what prevents its cultivation from obtaining this development is precisely the heavy duty laid upon it in England. The following is a statement of the duties to which the Currant is subjected in the different countries to which it is more or less exported:—In England the duty on every 1000 lbs. is 200 drachmas; in Austria, 240; in Germany, 162; in Holland, 11; in France, 1fr. 20 cents.; in Russia, by the Baltic, 20 drachmas; in Russia, by the Black Sea, nothing. In order to judge of the value of these duties, it must, however, be borne in mind that the original price of the Currants in the country does not often rise above 150 drachmas the 1000 lbs. It is, therefore, manifest that the people in England pay much dearer for their Currants than they might on account of the heavy import duty there levied; and it may be fairly assumed that a reduction of this duty would lead to an augmentation in both the consumption and exportation, and, consequently, also swell the revenue of the British Treasury, on the principle of free trade, which has been thoroughly tested, and, it is needless to say, not found wanting. The above remarks in so far as regards Greece are taken from a statistical table of the state of commerce in Greece for the last year. The publication of these lists only took place last year for the first time; and, although they do not pretend to the accuracy and correctness which only long experience can give, their publication is, nevertheless, an important step in the path of progress, and they are in the main correct."—(*Times' Cephalonian Correspondent.*)

TO CORRESPONDENTS.

SOWING TRITOMA UVARIA SEED (J. C. P.).—Having no greenhouse, you had better not sow the seeds of *Tritoma uvaria* till the beginning of February. If you had a shilling packet use two pots of the size No. 32, and

sow one half in each, not broadcast, or all over the pots in the usual way, but in a single row quite close to the side of the pot all round. You will save or gain nearly a month by that plan, as the seedlings need not be transplanted at all into other pots, but be planted out at the end of May in the same ball entire, which is by far the best plan for you and all others who need "elementary hints." After planting them out at the end of May, water them just as often and as much as if they were yet in pots. If you could get a couple of such upright pots as they use for Auriculas and Hyacinths, they would be better for the young *Tritomas* than the common 32-pots, because they allow more downward scope for the roots, and that is what suits them best. Of course, you will drain the pots thoroughly, and the same kind of soil that would suit a nice young *Tom Thumb* Geranium is just the very soil to get young *Tritomas* on their legs in time. Let the soil be between wet and dry at the time, and press it down a little, then sow the seeds, and cover them exactly as you would cover *Mignonette* seeds, and no more nor less. Give no water at the time, and manage so that the pot will need no water, or but very little indeed, till the tops of the seedlings are up through the covering. The best way to do that would be to put the seed-pot inside another pot that is one size larger, and place it in the front of the Geranium-frame, where the sun can hardly reach it; then a piece of glass placed over the two pots would keep out enemies, and keep in the moisture in the soil till the seedlings were up. Being such novelties, no doubt all kinds of plant-enemies will be apt to wish for a bite at them: be on the look out, therefore, till the plants are safe next July or August, and mind to lift them at the coming of frost, and keep them the first winter in the frame like young Carrots, in sand or light soil.

CONFERS (A. Spence).—We cannot make out which of them you mean. You will oblige us by writing the names more fully and distinctly.

UNSKILLED GARDENERS (An Ignoramus).—Take our advice, and never rush into a contest, either pen or pugilistic, until you are quite certain that you have a complete justification for becoming combative. Mr. A. J. Ashman says neither more nor less than that many employers bring disappointment to themselves by not taking care to ascertain beforehand that the gardeners they engage are skilful, practical, and well educated. With that opinion every one must concur; for there are abundance of superior gardeners to be obtained, and he is not wise who does not coincide with Mr. Ashman, in urging upon employers the desirability of being careful and sedulous to obtain them.

COTTAGE GARDENING SOCIETIES.—The Rev. Edward Cadogan, *Stevenage, Herts.*, will be obliged by the communication of any one's experience in the management of these Societies. We know that the Rev. Abner Brown, of Pychley, Northamptonshire, and Professor Henslow, at his living, Hitcham, in Suffolk, have been very successful in such management.

PLANTING BOUNDARY BORDERS (An Old Subscriber, Richmond).—One row of ornamental trees next the boundary, and one row of Portugal Laurels in front of them, and the space in front of the Laurels to be filled with a selection of flowering and evergreen low shrubs, is the best and most proper way for you to adopt; but unless the spaces are ten feet wide, or more, the trees and Laurels will take up the whole to make an effectual screen. A row of Larch would, indeed, be the best on that light soil. If you like them they would occupy least room, and look as well as any trees, without encroaching on you or your neighbours. Portugal Laurels from three feet to five feet high, plant first at ten feet or twelve feet apart, to be permanent, and put two or three common Laurels in between each pair of Portugals to fill up temporarily. Box, *Laurustinus*, *Aucubas*, *Pyrus*, or *Cydonia Japonica*, *Cotoneaster affinis*, and *microphylla* and a few pyramidal evergreens, as young Virginian Cedars, to be removed when too high. As to a list of "ornamental trees," all trees are ornamental; and as you cannot find ornamental trees in the London nurseries, you must tell us exactly what kinds of trees you want, and we will tell the best of each kind. Jasmines, Honeysuckles, evergreen and Ayrshire Roses, and Virginian Creepers, are the fastest growing climbers. Privet and Sweet Briar would make a nice, fast-growing hedge.

CUCUMBER FORCING (A Subscriber).—In the Manual, "Kitchen Gardening for the Many," published at our Office, price fourpence, you will find all the details you ask for.

WATER-PROOFING FOR CALICO-COVERED LIGHTS (A Novice).—Pale linseed oil three pints sugar of lead (acetate of lead) an ounce, white rosin four ounces. Grind the acetate with a little of the oil, then add the rest of the oil and the rosin. Mix all thoroughly in a large iron pot over a gentle fire, and then with a large brush apply it hot to the calico stretched previously by means of tacks to the frame. On the day following it will be fit for use, and may be tacked on firmly to remain. Previously to doing so, however, it is well to give it a second coating.

SPERGULA PILIFERA CULTURE (A Town Reader).—You will find full particulars in our No. 557, page 128. Soapsuds may be poured advantageously over the roots of a Vine inside a greenhouse. Buy Chrysanthemums in the spring. Lists will be published, and you can choose from them. If you then require advice, say whether you wish for the large-flowered or Pompones.

LIGHTENING HEAVY SOIL (Highgate).—The best mode of rendering your heavy soil more friable, will be to dig one spit deep from the whole garden, six inches below the surface. Burn that spit's depth so taken thoroughly, and incorporate the ashes with the surface. Bricklayers' limy rubbish, and old tanner's bark, would also be good additions. Such treatment, as you have drained your garden, ought to render the soil more workable.

PREVENTING HARES BARKING TREES (A Subscriber).—Both hares and rabbits may be kept from thus injuring trees, by painting over the stem as high as a hare can reach, with a liquid formed of night-soil and stable drainage.

COW-HOUSE DRAINAGE FOR VINES (F. A.).—You may soak the border now with the drainage during mild open weather, previously to covering the border with leaves; this is, supposing that the Vines already are not over-vigorous. You had better put iron pans filled with water upon the cooler part of the flue, to keep the air in the house moderately moist.

NAMES OF PLANTS (J. H.).—The yellow flower is the *Acacia dealbata*; the thick fleshy leaf is of *Begonia hydrocotylifolia*; the little sprig without flower is the *Cytisus racemosus*, a very ornamental plant.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JANUARY 18, 19, 20. LIVERPOOL. Secs., Messrs. G. W. Moss and W. C. Worrall.

JANUARY 31st and FEBRUARY 1st and 2nd. CHESTERFIELD AND SCARSDALE. Hon. Secs., Mr. J. Charlesworth, and Mr. T. P. Wood, jun. Entries close January 11th.

FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). Sec., Mr. W. Houghton. Entries close Jan. 14th.

FEBRUARY 29th and MARCH 1st, 1860. ULVERSTONE. Sec., Mr. T. Robson. JUNE 6th and 7th. BEVERLEY AND EAST RIDING OF YORKSHIRE. Sec., Fras. Calvert, Surgeon, &c. Entries close May 31st.

N.B.—Secretaries will oblige us by sending early copies of their lists.

EARLY CHICKENS.

THERE are always learners in every pursuit, and it is necessary that any periodical that undertakes to teach should give the information that is required at certain periods. We used to defer these remarks till the cessation of Shows left us space for them; but now, if we wait, the time will have passed when they are most valuable. While yet there are the great Shows of Liverpool and the Crystal Palace to come off, it is necessary those who mean to exhibit in July should be thinking of the chickens that are to enable them to do so.

Many are discouraged by the narrations of their friends, detailing the difficulties and disappointments they have experienced in endeavouring to rear early broods. Such is not our opinion. We have found, of late years, January and February better months than March and April for rearing chickens; but failure will be the result of giving a hen more to do than she can accomplish. If we had fourteen eggs of any particular strain from which we wanted early chickens, we would put them under two hens. We should expect five chickens from each, and should not doubt of rearing four. We would put them in a warm shed on a dusty floor and cover them carefully at night. We would feed them by candlelight twice after dark every night—say at seven and ten, or half-past, and we would have them fed very early in the morning, and covered up again; but we would not allow them to run about till, as a lie-à-bed friend of ours says, "the world is well aired." The hen should remain under the rip, and not be allowed to drag the chickens about.

The night-feeding at this time of year is necessary, because there are fifteen hours night to nine of daylight. The small number of chickens is necessary, because if there are more, as they grow their size prevents the hen from covering them, and one by one they get chilled and droop; whereas, if there are but four or five, she can hover them well till more genial weather makes her task a lighter one. We should not hesitate, when the grass is dry, the sun warm, and the weather kind and mild, to give them a mid-day hour in the sun. We should avoid the possibility of a chill, and feed liberally with bread and ale. We are more than ever convinced, at all seasons of the year artificial warmth leads to disease and death, and that anything like bottoms to the rips in which hens and chickens are put, such as boards, or carpet, or sacks, are decidedly bad things. Warmth should be given by food instead of fuel. Long fasting should be avoided, the hen should be kept in high condition, the chickens should have milk to drink, they should not be exposed to draughts, and then we think we should rear four out of every five.

SCARCITY OF EGGS.

WE have had many complaints this season of the scarcity of eggs; and, we believe, hens have laid badly. Our own have. But on inquiry we have found in many cases the fault did not lie with the birds. Those who expect eggs in the winter must select the stock with that view. Some breeds—as Cochins and Brahmas—may be more properly termed winter-layers than any others; but even with these it is entirely a question of age and season. Thus, a Cochin pullet hatched in March will often lay in August. We have known them do so at sixteen weeks old; but it must be recollected they were the most genial weeks of the year, and those most conducive to growth. Pullets hatched at the end of June, will not, probably, lay before January. Dorkings seldom lay regularly till they are seven months old. Spanish the same. To procure a regular supply of eggs, it is, then, necessary to have fowls so classed that a number of them shall arrive at the proper age at the period when they will be required to produce them.

Temperature affects this only to a certain extent; cold may diminish the number of eggs, but it will not prevent laying. Good feeding will facilitate it; but anything like the use of stimulating food to force it is very injurious to the bird, and often destroys life. It always impairs fertility and health in after years. Egg-producing in the winter may become a certainty, but only with pullets. After their first eggs they become hens, and then are subject to the seasons; but they obey the law of Nature when they lay their first eggs at a certain age. We must not be misunderstood. We do not intend to say hens *never* lay in the winter, but they cannot be depended upon to do so.

DETECTING THE SEX IN EGGS.

I HAVE been confidently assured that the sex of chickens may be foreknown by the position of the air-circle in the egg, which, undoubtedly, is not the same in all. In some it is exactly on the crown of the egg, in others it is more at one side. I have not myself tested the value of the information, nor can I say which of the two positions indicates the one sex, and which the other. Does no one use artificial chicken mothers? What precautions are necessary to insure poultry, sent to shows by rail, being properly tended on the journey? And what is the usual fee per pen for exhibiting? In the "Poultry Book for the Many," at page 9, a plan for poultry-houses and yards is given. A House for sitting hens. D Roosting-house for stock (with nests). I should like to know (for it is not explained), how, if a hen lays in D, is she to be made to sit in A. Many a hen I have found will not sit anywhere but in the nest in which she has laid her eggs.—G. M.

[We are strongly of opinion that no one can foretell the sex of the chicken that will be produced by an egg. At all events, we never met with any one that did so foretell correctly. Those who claimed the knowledge necessary for so doing were wrong as often as they were right. Nests should always be moveable; and then, after the eggs have been placed under a hen, the whole together may be moved from D to A.—Eds. C. G.]

DEVIZES & NORTH WILTS POULTRY SHOW.

JANUARY 11 and 12, 1860.

THE first class we came to on entering the room was the *Spanish*. Amongst the list of competitors were found the names of many of our first breeders; the first prize justly going to a pen of birds, in most splendid condition, of Mr. J. R. Rodbard's. The pullets in this gentleman's pen were very good, and the comb of the cock was much more upright than we have seen them of late. Mr. Atkins came second with a pen of good birds; and Mr. J. K. Fowler was a good third. Mrs. Fookes' and Mr. Long's well deserved their commendation.

The *Dorkings* were the next birds that came to our notice; and amongst them were many very first-rate specimens. The first-prize birds were very first-rate, and were claimed immediately the Show opened, and could have been sold at a much larger price, ten pounds having been offered and refused for them, this not being the first time they had distinguished themselves. The Marchioness of Winchester's second-prize pen was very fine, and the cock was considered by many to be superior to that in the first-prize pen, though the hens were undoubtedly inferior; and the probabilities are, that had Mr. Burns's third-prize birds been in better condition, they would have held a very different position, as they were a remarkably fine pen of birds, but showed evident signs of too frequent exhibition. We believe them to be the same pen that obtained the Silver Cup at Darlington a few weeks since. There were many good birds in the commended pens, especially the Rev. J. L. Popham's and the Rev. J. G. A. Baker's.

In *Cochins*, although the competition was not large, it was a very hard run between Mrs. Fookes and the Rev. G. Gilbert; the latter gentlemen taking the first prize with a very nice pen of Buffs, and Mrs. Fookes second and third with splendid pens of Partridge and Buff; this lady also had another pen of Buffs highly commended.

We now come to what was most decidedly the class of the Show—the *Black-breasted Red Game*, and where all were so good, it becomes almost invidious to particularise, but we cannot help remarking that the first and second-prize birds were very superior; the pullets in the latter being in splendid condition, and had they a better cock with them the respective positions of the

two pens might have been reversed, as the pullets, in our opinion, were decidedly superior to those of the first-prize hens. Mr. Lamb's third-prize pens were good; but the cock was very small, though otherwise a very keen, close-feathered bird.

In the class for "Game of any other variety," there was nothing worthy of notice, if we except the Rev. G. S. Cruwys' White Game, which, although they only obtained the third prize, were, in our estimation, very good.

There was a good show of *Hamburghs* in all four classes. Mr. Martin's Gold-pencilled, Mr. Keable's Silver-pencilled, Mr. Lane's Gold-spangled, Mr. Newick's and Captain Beardmore's Silver-spangled deserve especial mention. Mrs. Fookes also showed a very nice pen; in fact, the ear-lobe of the cock bird in this lady's pen was superior to that of either of the other birds in his class, but he was in other points inferior to them.

The class for White-crested Black *Polands*, brought forth several of our first breeders, but led to a very disgraceful disclosure:—not only every pen, but nearly every bird having been trimmed to a great extent in the crest; and the birds in one pen having had the whole of the black of the front of their crests cut off, giving their heads very much the appearance of scrubbing-brushes when their crests were a little thrown back. Mrs. Pettat's Golden, and Mr. G. S. Fox's Silver, in the class for "Polands of other varieties" were perfect. Mrs. Pettat also showed some good Silvers which were highly commended.

The *Malays* were all that could be wished, both as regards numbers and quality. Mr. Brooke's first-prize birds were perfect, and the cock in Mr. Rogers's pen was very good, and was claimed soon after the Show opened by Mr. J. J. Fox. Mr. Ballance showed some beautiful white birds, which were highly commended. The class was, in fact, termed by the Judges as extremely good.

The *Game Bantams* were a very good class as far as numbers were concerned; and Mr. Rodbard's first-prize pen of Black-reds, and Miss Steele Perkins's second-prize pen of Duckwings, were very good. Mr. Chadwin was highly commended for a pen of Duckwings, and Miss Steele Perkins for a pen of Reds. The Duckwing Game numbered very strong.

In the class for "other Bantams," the Rev. G. F. Hodson obtained a first prize with a beautiful pen of Golden Sabright Bantams, and Mr. Dutton Bayley second. Mr. Kerr showed a nice pen of Blacks, but the cock had a hen tail, which is a fatal fault.

Mr. J. K. Fowler headed the prize list in the class "for any distinct breed" with a good pen of Brahmas, and Mr. Fisher second with a beautiful pen of Silkies, and Mr. Coles's Andalusians obtained the third. There were also some good Pheasant Malays and Guelderlands exhibited.

The *Turkeys* formed an extraordinary class. Mr. Williams's first-prize birds were very hard run by Miss Crawshay's second-prize; and they in their turn were very closely run by the two very highly commended pens. Miss Crawshay's birds were claimed at six guineas by the Marchioness of Winchester.

The *Geese* formed a good class. Mrs. Fookes's Toulouse and Mr. Williams's Embden well deserved their honours.

In Aylesbury *Ducks* Mr. Hanks carried off the laurels in spite of Mr. Fowler, whose birds were sadly out of condition as regards feather, the distance of their journey having told upon them in that respect. This gentleman, however, managed to hold his own in Rouens, and obtained first with a very nice pen of birds. We never remember having seen better East Indians than those exhibited by Mr. Ballance, of Taunton—their plumage was lustrous in the extreme; in fact, that of the Ducks was superior to the plumage of the Drakes in some of the pens:—it is, therefore, useless to say they well deserved the prize they won. The second-prize White Calls were very good; so were Miss Perkins's East Indians and Brown Calls.

In *Single Game Cocks* there was nothing worthy of particular mention; six only having been entered in the sweepstakes, which is rather remarkable.

In *Dorkings* the competition was good, also in *Pencilled Hamburghs*.

In the *Game Bantam Cock* class Mr. T. H. D. Bayly obtained first with a most perfect bird, which was, in fact, what Game Bantams ought to be—a perfect Game cock in miniature: we never remember having seen a better bird.

In *Malay Cocks* Mr. Ballance obtained first with a most beautiful White bird; the Judges declared they never saw a better. Mr. J. J. Fox taking second. The class was pronounced by them to be "very good."

Having done with the poultry, we have a word or two to say about the exhibition-room, &c. By permission of the Mayor, the beautiful Corn Exchange was lent for the occasion, which, with the exception of the Crystal Palace, is the best adapted for the purpose we have seen anywhere, and the arrangements of the pens and classes were unexceptional. There were five rows of pens from end to end of the building, and all birds were on the same level, the room being sufficiently long to admit 260 pens being so placed, without having to set one over another. All birds, therefore, were well placed, and in this respect there could be no complaining.

The success of the undertaking we find was complete, and the Society, as well as the exhibitors, are indebted to the Honorary Secretary, Mr. George S. Sainsbury, for his indefatigable exertions in bringing about such a result.

SPANISH (any age).—First, J. R. Rodbard. Second, C. Atkins. Third, J. K. Fowler. Highly Commended, Mrs. H. Fookes. Commended, T. Eacott, and J. Long.

DORKINGS (any age or colour).—First, E. Giddings. Second, the Marchioness of Winchester. Third, S. Burn. Highly Commended, Rev. J. G. A. Baker, and Rev. J. L. Popham. Commended, G. Chadwin, C. Smith, and Miss J. Milward.

COCHIN-CHINA (any age or colour).—First, Rev. G. Gilbert (Buff). Second, Third, and Highly Commended, Mrs. H. Fookes (Partridge).

GAME (Black-breasted and other Reds).—First, Hon. G. Howard. Second, T. Brown. Third, J. Lamb. Highly Commended, J. J. Fox, and W. Rogers. Commended, J. Moore, and R. Elling.

GAME (any other variety).—First, S. Dupe. Second, T. W. Phillips. Third, Rev. G. S. Cruwys. Commended, J. J. Fox, and R. Elling.

HAMBURGHS (Gold-pencilled, any age).—First, J. Martin. Second, W. Withington. Third, G. Giddings. Commended, Lady V. Howard, and Mrs. Pettat.

HAMBURGHS (Silver-pencilled, any age).—First, Master E. Keable. Second, Miss A. Keable. Third, Miss Munday. Highly Commended, Master E. Keable, and Miss Munday.

HAMBURGHS (Golden-spangled, any age).—First and Second, W. R. Lane. Third, Messrs. Bartrum and Down. Commended, W. Cuff, and T. Eacott.

HAMBURGHS (Silver-spangled, any age).—First, J. Newick. Second, Captain Beardmore. Third, Mrs. H. Fookes. Highly Commended, G. Chadwin.

POLANDS (Black with White Crests).—First, G. S. Fox. Second, T. P. Edwards. (The Judges regret to state that nearly every pen in this class was trimmed in the crest.)

POLANDS (any other variety).—First, Mrs. Pettat. Second, G. S. Fox. Highly Commended, Mrs. Pettat.

MALAYS.—First, A. G. Brooke. Second, W. Rogers. Highly Commended, C. Ballance, and J. J. Fox. Commended, A. G. Brooke. An extremely good class.)

BANTAMS (Game).—First, J. R. Rodbard. Second, Miss S. Perkins. Highly Commended, G. Chadwin, and Miss S. Perkins. Commended, T. H. D. Bayly.

BANTAMS (any other variety).—First, Rev. G. F. Hodson (Gold-laced). Second, T. H. D. Bayley (Silver-laced). Highly Commended, W. H. Kerr (Black).

OTHER DISTINCT BREEDS.—First, J. K. Fowler (Brahmas). Second, C. S. Fisher (Silky Fowl). Third, C. Coles (Andalusians). Highly Commended, G. Botham, J. Wentworth, and T. Williams. Commended, J. Hinton.

TURKEYS.—First, T. Williams. Second, Miss L. Crawshay. Very Highly Commended, Mrs. H. Fookes, and Miss J. Milward. Highly Commended, T. Williams. Commended, the Marchioness of Winchester. (Extraordinarily good class.)

GESE.—First, Mrs. H. Fookes. Second, T. Williams. Highly Commended, T. Brown, and T. P. Edwards.

DUCKS (Aylesbury).—First, G. Hanks. Second, J. K. Fowler. Commended, Mrs. H. Fookes, and G. Hanks.

DUCKS (Rouen).—First, J. K. Fowler. Second, Mrs. H. Fookes. Highly Commended, T. Keable. Commended, T. Brown, W. Hillier, and G. Hanks.

DUCKS (any other variety).—First, C. Ballance. Second, Mrs. Penraddocke. Highly Commended, C. Ballance, and Miss S. Perkins.

SWEEPSTAKES FOR COCKS.—*Game*.—First, Hon. G. Howard. Second, J. Lamb. Highly Commended, G. Chadwin. *Dorkings*.—First, Rev. J. G. A. Baker. Second, Mrs. H. Fookes. Commended, G. Chadwin, and Mrs. H. Fookes.

Spanish.—First, C. Ballance. Highly Commended, C. Atkins. Commended, Miss M. E. Peel. *Cochin-China* (any colour).—First, Mrs. H. Fookes. *Pencilled Hamburgh*.—First, J. Martin. Second, Mrs. T. Keable. Highly Commended, Mrs. Pettat, and J. Llewellyn.

Spangled Hamburgh.—First, Messrs. Bartrum and Down. Highly Commended, G. Chadwin, W. White, and Mrs. H. Fookes. *Poland* (any variety).—First, J. Hinton. *Bantam* (Game).—First, T. H. D. Bayly. Second, G. Finch. Highly Commended, J. R. Rodbard, and Miss S. Perkins.

Malay.—First, C. Ballance. Second, J. J. Fox. Highly Commended, C. Ballance. Commended, H. Adney. (A very good class.)

The Judges were—Mr. W. B. Tegetmeier and Mr. J. Challoner.

ORIGINAL OR PURE COLOUR IN FOWLS.

I BELIEVE it is generally considered by naturalists that our domestic fowls are descended from the wild Jungle Fowl of India, of which, probably, there are several geographical varieties or sub-species; and most of our breeds are attributed to the *Gallus Bankiva*, which is a Black-breasted Red: hence I am justified in considering the Black-breasted Red as an original and pure colour. Some naturalists think that the Duckwing colour is the domesticated representative of the *Gallus Sonneratii*: if so, then the

Duckwing is also an original and pure colour. This idea is also rendered probable from this variety having a longer and more abundant plumage, which may arise from the horny tips of the feathers of that kind being reduced by domestication to fuller feathers in this variety.

All other colours are regarded as the effect of albinism and melanism; and as I am not aware of any wild representative of the Brown-breasted Reds, that is my reason for doubting the originality of that colour.

White, Black, and Blue, when unmixed (though not original colours), may be called pure colours.

Although cock-fighters did not regard the colour of Game fowls as indicative of purity of breed or courage, yet they had distinctive names for every shade and mixture. The Black-breasted Red (that is the colour of the *Gallus Bankiva*), is a red cock with black breast; but what I understand by a Black-red, is a Black cock with some red on the back; in fact, a cross between a Black-breasted Red and a Black, and marked like the Black Brassywings, only having red where they are yellow.

Having given this explanation, I shall relinquish the discussion.—B. P. BRENT.

BIRDS NOT THE EXHIBITOR'S OWN.

MYSELF and several brother fanciers have noticed that Birmingham, and also Halifax plate, was taken by *partly* the same birds, although by different exhibitors.

Firstly, at Birmingham. Mr. Eden took the plate with some of his own, coupled, I believe, with some of Mr. Morgan's birds.

Secondly, at Halifax. Mr. Morgan took the plate with some of his own, and, I believe, some of Mr. Eden's birds.

Can you or any of your readers inform me whether this is the case? Also, if the practice is correct. Is it not one of the rules "That any exhibitor taking prizes with other than his or her own birds shall be excluded from all future competition?" If you or any of your readers can answer the above, I shall esteem it a favour.—SHORTFACED RED BEARD.

[The writer of this inquiry having sent us his address; as the inquiry is made with due courtesy; and as the subject is important to all exhibitors, we have no hesitation in inserting it. If any exhibitors club together in the manner intimated, we consider it very unfair, and totally at variance with the rule quoted. It is in the spirit of the cricket club who, to win a match, picked players from ten other clubs.—EDS. C. G.]

NEW BOOK.

DIARY OF THE DAIRY, PIGGERY, POULTRY YARD, AND APIARY FOR 1860.—This very useful annual, though published anonymously, is well known to be prepared by Mr. Warwick, editor of the *Essex and West Suffolk Gazette*, and he need not be ashamed of this offspring of his ingenuity. It affords a very ready repository for the events and expenses of the four departments of rural live stock whose tenements are enumerated in the title page. But it does more, for it gives a calendar of monthly operations, with notes on the diseases of the said live stock, and remedial directions. There are also some directions for feeding and managing poultry for exhibition.

WEEDING POULTRY.

At this time, when walks are being carefully scanned, we feel bound to repeat advice we gave last year at this time. Do not let any consideration induce you to put up a bird with any capital defect. Depend upon it, it will appear in the chickens. Above all, avoid it in the cocks. A bad comb, crooked back, wry tail, faulty leg or claw, or foul feather, is sure to be hereditary. Faults are more certainly transmitted than virtues, and a defective sire materially interferes with the value of a yard.

MEETING OF THE PHILOPERISTERON SOCIETY.

THE Birmingham and Halifax meetings are over. The great bulk of pigeon fanciers and exhibitors are preparing for the trials of a fresh campaign, and it has been reserved for the members of the above Society to achieve a great triumph at their annual Show

held at the Freemason's Tavern, Great Queen Street, London, on Wednesday last.

Many of our readers are acquainted with the admirable manner in which everything connected with this Society is carried out; but to those who are strangers to it, we may say that it is the *beau ideal* of a Pigeon Show, both from the beauty of the specimens exhibited, and the manner and condition in which they were shown.

On entering the room, on the right was Mr. Wicking's collection ranged in several pens. The Jacobines, Yellow Owls and Turbits were much admired in the first cage, and with them was a very handsome mottled Trumpeter. The next cage contained specimens of Turbits of different colours. A pen of Swallows, of four shades, Reds, Yellows, Blues, and Blacks, was much noticed; and then came a cage of Blue, Red, Black, and Yellow Magpies admired by every one. The collection of Owls and Balbs belonging to this gentleman was, as usual, very good, and the cleanliness of the plumage of all his birds was generally remarked. Mr. Bult's Powters occupied the end of the Hall; the centre pens were occupied by his White birds, which seemed to consider the admiration they received as their right. Some Yellow and Black Jacobines in a small pen belonging also to Mr. Bult showed much good breeding. There were also some very large Powters contributed by a Halifax fancier, among them a pair of Blacks, of great size. Messrs. Percivall and Archer sent Tumblers; the former an unusually good Almond hen, and some good Kites. Mr. Harrison Weir's White Fantails were all that could be desired. His Blues, however, were too crowded in their pens to show to advantage. There were some Fantails said to be Almonds, but they require much more richness in their ground colour before they are worthy of their name. One pair of Archangels only appeared. The Carriers were grand. A young Black bird belonging to Mr. Oliver promised to be perfection; and Mr. Hayne's birds were, as they always are, very superior. Two pairs of Suabians, one Porcelain, and a pair of very ugly blue Pigeons, with white heads, made rather a motley pen. One cage of Barbs only was exhibited. It contained one or two very good birds; but the Yellow hens were deficient in head properties and coarse in feather. The Hall was crowded all the time of the Show, and the meeting is considered the most successful yet held.

TEN THOUSAND DOLLARS MADE IN A YEAR FROM EIGHTEEN SWARMS OF BEES.—We have from reliable authority the following account of remarkable success (pecuniary) in raising bees in this State. A gentleman in one of the valleys near the bay last year purchased 18 hives of bees, for which he paid 1800 dols. From these 18 hives he had 101 swarms, and he has sold 100 of the swarms for 100 dols. each, thus realising the snug sum of 10,000 dols. in one year. He still has on hand 19 swarms, one more than he commenced with! So much for bees.—(*California Farmer*.)

OUR LETTER BOX.

TURKEYS AT BIRMINGHAM.—J. M. is assured that we did not intend to suggest that her Turkeys were too fat. We know her birds, and we have heard that the management is good; but we have not the slightest knowledge whether they were weighed at Birmingham, or on what grounds the Judges there awarded the prizes.

EGGS IN WINTER (*Louisa*).—The fact of your hens being "from two or four years old," renders patent the cause of your having no eggs in winter. Two or three hens only for hatching purposes, and all the others early pullets, should be the stock of those who wish for a good winter-supply of eggs. Your diet for your poultry is too good; less barley and no "scrapping from the kitchen" would be better. The range over sixty acres of meadow will give the fowls enough animal food in the form of insects—the best of all forms for poultry.

ROUP (*A Constant Reader*).—Exposure to wet and cold after roosting in a warm, ill-ventilated house, is a very usual cause. Try one grain of powdered sulphate of copper daily, mixed in oatmeal made into a mash with ale. Separate the rousy fowl from the others, keep it from exposure to cold and wet, and let it have plenty of green food. Wash the head twice daily with tepid water. If not better in a week, kill it. If you bought our "Poultry Book for the Many," you would for sixpence have information on all these points.

LOSS OF WING-FEATHERS IN BULLFINCHES (*North Lincoln*).—You may at once dismiss from your mind the idea of any one desiring to spite you by plucking out the wing-feathers of the bullfinches. It is no uncommon thing for cage birds to take a sudden fright and beat themselves against the wires of their cages at night and knock out their feathers, and make their pinions bleed. I once had reared a nest of young bullfinches, and taking out the slide to clean the cage so frightened them that one dropped down and died from the fright in a few seconds.—B. P. BRENT.

GROUND OATS (*C. R.*).—When oats are ground for poultry food, the bran, or chaff, as you call it, should not be bolted or sifted out. Merely have the oats ground, and not dressed.

WEEKLY CALENDAR.

Day of M'nth Week.	Day of Week.	JANUARY 24—30, 1860.	WEATHER NEAR LONDON IN 1859.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
24	Tu	Ruscus aculeatus.	29.781—29.646	48—41	S.W.	—	53 af 7	32 af 4	17 a 6	1	12 16	24
25	W	CONV. ST. PAUL. PRS. ROYAL	29.967—29.661	49—35	S.W.	.08	52 7	33 4	29 7	2	12 31	25
26	Th	Betula alnus. [MARRIED, 1858.	29.772—29.741	49—37	S.W.	—	50 7	35 4	37 8	3	12 45	26
27	F	Viola odorata.	29.722—29.688	51—37	W.	—	49 7	37 4	45 9	4	12 57	27
28	S	Narcissus pseudo-narcissus.	29.791—29.768	50—28	W.	—	48 7	39 4	55 10	5	13 9	28
29	SUN	4 SUNDAY AFTER EPIPHANY.	29.842—29.504	50—43	S.W.	.08	46 7	41 4	morn.	6	13 21	29
30	M	KING CHARLES I. MARTYR, 1649.	29.510—29.405	45—30	W.	.06	45 7	42 4	7 0	7	13 31	30

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 44° and 31.5° respectively. The greatest heat, 57°, occurred on the 25th, in 1834; and the lowest cold, 15° on the 27th, in 1855. During the period 160 days were fine, and on 105 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE compost intended for the plants in these houses should be prepared and sweetened by several turnings; and a sufficient supply for immediate use should be stored in an open shed.

CALCEOLARIAS (Herbaceous).—To be potted into larger pots as they require them; compost equal parts of turfy loam, peat, and leaf mould, with a sprinkling of silver sand. To be kept in a moderately-moist atmospheric temperature of from 45° at night to 55° in the day. To be slightly syringed with tepid water on sunny days, and to be kept free from insects.

FUCHSIAS.—After the old plants are shaken out of their pots, and their roots reduced and fresh potted in a compost of turfy loam and peat, with a little leaf mould and some sand added, to be introduced to a temperature of 60°. When some of the young shoots are an inch long they may be taken off, and inserted in pans of sand kept damp, where they will soon take root, and will require to be pushed on in heat to make fine large specimens for the conservatory or flower garden.

NEW HOLLAND PLANTS.—Water them with care and moderation. Air to be given freely night and day in mild weather. Fire heat to be applied only, and then merely sufficiently, to exclude frost. The strong shoots of the vigorous young stock to be stopped in due time as the best foundation for future good specimens.

Sow seeds of Thunbergias, *Phlox Drummondii*, Mignonne, *Ten-week* and other Stocks, in pots, to be placed upon a slight hotbed.

STOVE AND ORCHID-HOUSE.

ACHIMENES.—Place the tubers thickly in pans, to be potted singly as they appear, in equal portions of leaf mould and sandy loam; to be started into growth in a moderate bottom heat.

GLOXINIAS.—Select a few varieties. To be shaken out, and fresh potted in equal parts of turfy loam and heath soil and a little sand. To be excited in bottom heat.

GESNERA ZEBRINA.—Those which were first in flower should be dried off for early work next season. This is to be done by withholding water gradually, and by keeping their foliage still exposed to the light.

Sow seeds of Egg Plants, Cockscombs, Amaranths, and other such tender annuals in heat, to grow them in good time into fine specimens for the adornment of the conservatory in summer.

FORCING-HOUSES.

CUCUMBERS.—The plants preparing for ridging out early in February will require attention in airing, and watering with tepid water occasionally when dry, and to be kept close to the glass to produce sturdy growth. The plants on dung-beds require great attention at this season. To be kept within eight or nine inches of the glass; to be stopped regularly; and to maintain a heat of not less

than 70° by day; to be able to give air to dry the plants. The fermenting materials to be always prepared ready to receive the linings when the heat declines. For those who are fortunate enough to be provided with pits heated by hot-water pipes, such constant labour and attention will not be necessary.

MELONS.—To be treated as advised for Cucumbers.

PEACHES.—When the blossoms are beginning to expand, discontinue syringing, but sprinkle the pathways, to produce a moist, but not too damp, and consequently a healthy, state of the atmosphere. Fresh air is indispensable and should be admitted at every favourable opportunity; and if the cold external air could be made to pass over the flues, or hot-water pipes, so as to get warmed before coming in contact with the blossoms, a gentle circulation would be constantly kept up until the fruit is fairly set.

PINES.—Great care is necessary when syringing, more especially those that are about throwing up their flower-stems, that no more water may lodge in the hearts of the plants than will evaporate during the day. But if, from any cause, a portion remain until evening, it should be drawn away by means of a syringe having a long and narrow tube at the end of it, or by a piece of sponge tied to the point of a small stick.

STRAWBERRIES.—When these are throwing up their blossom-spikes a little liquid manure may be given, but it should be very weak, and perfectly clear. A succession of plants to be introduced where there is a gentle heat. The decayed leaves to be trimmed off, the surface of the soil to be stirred, and the pots to be placed on shelves near the glass.

VINES.—Continue the treatment as advised last week.

Keep up a succession of Kidney Beans, Asparagus, Sea-kale, and Rhubarb.

PITS AND FRAMES.

Cuttings of Anagallis, Heliotropes, Geraniums, Lobelias, Salvias, and Verbenas may now be struck in a gentle bottom heat, and pushed forward to make good sized plants for bedding out when all danger from frost is over.

WILLIAM KEANE.

HOW TO PROCEED IN THE ARRANGEMENT OF PLEASURE-GROUNDS.

EVERY year, and every month of the year, bring fresh evidence to THE COTTAGE GARDENER office of the rapid strides which are making, all over the country, in the new style of flower-gardening, the planting in masses, and arranging the colours so as to make, as it were, a natural picture; not too much colour here to drown a less quantity there, or yonder, nor too bright anywhere in a given composition, where the over-brightness would attract the eye to the prejudice of weaker colours. This we see abundantly from plans of flower gardens which constantly reach us from amateurs and young gardeners for our judgment. From these plans we learn that the greatest difficulty in teaching the elements of proper

planting lies in understanding the proper quantities of the secondary colours, so to speak, or blues, purples, and pinks. Scarlets and whites used to spoil every plan or garden of which a plan is yet in existence, previous to the birth of *THE COTTAGE GARDENER*, in which the male portion of our artists first found their best masculine efforts set at naught and derision.

Repton, as interpreted by the inimitable Loudon, had taught the true principle, or rules for planting all trees and bushes, so as to give out, as it were, the best effect to a cultivated eye, according to our British ideas of beauty in art. But as far as planting goes on that principle, Repton and Loudon might just as well not yet have been born; for in no garden I have ever seen, or saw a plan of, are their rules for planting carried out from end to end. Many of our gardeners understand Repton's rules just as well as he did, and many more of them could now plant better than he and his interpreter; but they never have the chance. I mean that such gardeners never, or but very seldom indeed, have the opportunity of planting places of sufficient extent to exhibit the effects of artistic planting. It is only a bit here, a morsel there, and a flea-bite everywhere, in which artistic planting can be seen in England. How it is now done in Ireland and Scotland, we have little of learning that I know of. But, assuredly, there is not a public or a private garden which can be seen from a railroad, within fifty miles of London, in which the dullest and the very commonest-place planting may not be seen in some part or other of the grounds. Even places which have been once planted as near perfection as the conditions would allow, are seen after a few years to be altogether below criticism, which may seem a paradox to many, but is as clear as crystal to those who know the rules and regulations of planting, and as self-evident. It is in the nature of things, of the things planted I mean, that it should be so in a great many instances.

A rich man or woman who had other fish to fry in his or her younger days, buys an estate without one particle of the necessary amount of country knowledge, or of country life, to enable him or her to give directions to plant any mortal thing as it should be done. But having plenty of money and a fair share of ambition, he or she shall not be led by the nose by a set of *rascallions* calling themselves landscape gardeners, of which scape they know as much as the pot does of the kettle, and argue their points on the same principle of comparison of colour. No: each of them will engage the services of an acknowledged landscape gardener of eminence and skill, as not only the best but also the cheapest in the long run.

The landscape gardener finds the old house, or mansion, buried in an overgrown thicket of trees and shrubs of all shapes and sizes; not a breath of air can one get in that old house, or mansion, until the grounds about it are opened up in "views," thinned of trees, relieved here by cutting away all the underwood, and deepened there by more planting. The very old stag-headed trees he leaves on purpose to stamp the antiquity of the place; as, the older the more prized in the peerage. His roads, drives, walks, and avenues through the park are all accounted for by the nature of the grounds, or these ancient plantings; and his new plantings have express reference to the lines of his amended ways; and from every point or turn in the road, or avenue, a new assortment of the forms of trees, or a new combination, as we say, is sure to attract the skilful eye of the stranger, which alone can appreciate the art of the master mind. Everything is done and finished in some style or other, according to the rules bearing on that particular style, as far as they could be borne out under the disadvantages in which the place was found. With this finish is also finished the foundation of that which will inevitably destroy the effect so produced; and with that finish also will begin a new agency, which will help and hurry on the obliterations which leave all the gardens, within a certain distance of Lon-

don, as if no landscape gardener had ever put a foot on our island.

The foundation that is to ruin the effect of artistic planting is in the nursery, and seems there innocent as the babes in the wood; and so it is, and might continue to be. But a wet or a dry nurse is sure and certain to cause mischief—bad training and ill habits in a wood, plantation, grove, dingle, or shrubbery; and the wet or the dry nurses are they who thus efface the spirit of this age from the aged face of the next generation of plantings. No rich or poor man who had any eye for trees, for shrubs, and for their effect on his place, was ever yet content to have them planted at such distances apart as would show them to his heir in his days as they appeared to himself in his mind's eye while he was planting them. The landscape gardener falls in with the mind of the age; "he fills up" the ground, or puts in "nurses" to hide the way through the planting, and to "nurse" and shelter finer trees which are to give the effects he intends when they come to full size and show themselves, and by that time all traces of the nursing helps are gone, or supposed rather to be cleared away; but that has never been the case altogether in any one garden with which I am acquainted. No: the nurses, or extra trees put in to fill up the ground or nurse the plantation, are allowed to have a share in it for life; their habit or their way of growth may be quite the reverse of that which is intended by the planter. But in truth, by the time the growth is at maturity to give the sought-for effect, the whole design is completely altered, and no evidence of a master hand or head remains; yet there is plenty there and to spare, and not too thick, and the whole was done and designed by an eminent landscape gardener.

All this was suggested by reading Mr. Bailey's excellent article on planting at page 239. I agree with all he says about Mr. Milner's planting at the Crystal Palace; all who understand the subject will also agree with him that Mr. Milner has proved himself there to be an artist of first-rate judgment and taste, but Mr. Milner has left before the evidence of his skill could be apparent to the great mass of our people; and unless the next gardener at the Crystal Palace, like Mr. Eyles, is able to enter into the spirit of the planter, the grouping of trees and shrubs all over the grounds will in a few years defeat the aims of the planter, and be as good a specimen of the inextricable confusion of kinds as can be met with within the range of my observations.

To plant in the first instance only such trees and shrubs as were meant to remain permanently would have left the garden, in the eyes of those not versed in the design, a thin, cold, unsheltered scene; and so it is, and would be everywhere at the first planting. Our ideas of comfort require that all our first new plantings should be clothed, as it were, at once; some to fill up for comfort's sake, or for the looks of the thing; and some others to form a screen and shelter, which would help the permanent kinds to grow faster and with less risk to suffer from exposure—to be nurses, in fact. But if the nurses at the Crystal Palace are allowed to usurp the privileges of the rest of the planting—of the permanent kinds, the effect will be as in other and less conspicuous places—that is, the effect which Mr. Milner could see in his mind's eye when he was planting will be subverted, and no man will be able to read what that effect could be from the jumble before him. And it is the same all over the country and kingdom. A Repton may suggest, a Loudon digest, a Milner design, plant, water, and screen; but who will do the thinning which will bring out the fair fruit and fame of these eminent men—who indeed? But that is the rub, and the very point at which all our plans and planting turn from effect to vulgar lumpishness, like planting flower-beds without regard to colour or the value of one colour over another, or like the volunteer corps without drilling—a fine race, noble fellows, good-looking individually, well fed, well clad, and well to do; plant them

out, however, as we do our trees with a view to effect—face them with invaders in the absence of drill, and the effect would be just the same as the effect of a mob at a house on fire in the heart of London.

But there are ways and means to get out of the fix, if we would but fix upon them. You know we keep plans and books now to facilitate the yearly operations in the flower garden, and why not do the same for the park and pleasure ground? Why not keep the original plans, and every other plan from that day to this? The outlines of all the plantings on a working plan, with numbers in the exact position for the trees corresponding with the numbers under which every tree, shrub, and bush is written in your garden-book, so that at any moment you could go with so many men and thin out so many and such kinds without the smallest puzzle or hesitation, or the least fear of the consequences; for the more you thinned out each time you took it into your head, the sooner the effect, desired and aimed at in the original planting, would become apparent to gladden the eyes and ears of all who saw or heard of your success.

In very extensive plantings, as those on a large estate, where timber was and always will be more valuable than the general effect, the outlines of the different plantations, as they are seen from drives and walks in the grounds or out from the mansion windows, would alone pay for the pains of planting them on a different scale, or with trees different in outline of growth from the bulk of the woods behind them; and for that style of planting the plan and catalogue of trees might differ from those for smaller places. As, for instance, instead of numbers on the working plan corresponding with the numbers in the garden-book, the more prominent shapes of the trees would answer better. So that the shape of a Spruce would indicate the place of any other kind of Conifer; an Oak shape for all Oaks, and other round-headed trees, and so forth. But for small places, and for all places which were laid out on a garden plan, like the Crystal Palace, I would have a figure for every tree, shrub, and bush, down to a trailer, marked on the plan. Suppose 40 was the number of *Araucaria imbricata* in the garden-book, put 40 down on the plan where every *Araucaria imbricata* is planted out, or is intended to be planted out permanently, always using the number 40 for that kind, and no other, and so on for every plant that is intended to stand to grow to full size; and no number or mark to any tree or shrub which is to be thinned out as they get too close to one another.

With a rough plan of that kind, and so numbered for each section of the garden, a perfect stranger could enter the Crystal Palace grounds to-morrow and thin out the supernumeraries just as safely, and quite as accurately, as the very man who planned and planted. A garden no more than a quarter of an acre must often have evergreens or something to hide the boundary, and some few choice trees. Therefore, book-keeping by single entry is just as applicable to it as it would be for the Crystal Palace. But this will go in at one ear and out at the other as sure as fate, for it seems to be the rule with us to plant well, to mix for thickening or for the looks of the thing, and for nursing up, and to let the mixings rule the fate of our most expensive and our most artistic ways of planting.

It is the very reverse of all this with the flower gardens, which are more immediately under the control of the ladies. Point out any improved way of planting to them, and it is sure and certain of being adopted at once. Any new plant that is better than an old one is certain of a sale the moment it is known. Yearly memoranda are booked for the next season with all the regularity of a banking-house, and every number of a garden periodical like THE COTTAGE GARDENER, is read and looked over for the least turn of the fashion; and this shows that colours are much more easily understood and worked upon than mere forms, although some people maintain

that real beauty lies in the natural forms and outlines of natural objects. Yet the fact with which I started is patent to our eyes, that flower gardening is rapidly gaining ground, on the principle of beauty in the proper arrangement of colours; while effect from the proper disposition of trees and shrubs is understood but by very few, and remains the same as it was when little else was aimed at by the great writers of the last generation, on whom the light of flower gardening had never shined.

D. BEATON.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(Continued from page 156.)

CROPPING OF SIXTH YEAR.

- 60 rods of Grass that might now be called old meadow.
- 60 „ New Grass and White Clover sown preceding season.
- 80 „ Wheat that had been Clover for two years.
- 20 „ Lucern that had been cut two years, but still is supposed to yield well.
- 20 „ *Trifolium incarnatum* where the Carrots had previously been.
- 20 „ Potatoes where *Holcus Saccharatus* and Mangold Wurtzel had been.

In the above arrangement the *Trifolium* is expected to supply the first demand for green food: after which the Lucern, and finally Grass, which usually grows rapidly on good ground if the winter be mild. The same description of routine work to be followed throughout in regard to the crops recommended, the *Trifolium* only to be cut once; and when it is all done, the ground is to be broken up, and, if well tilled, Swede Turnips may be sown. It may be too late for that, and White Turnips may be sown instead. It is proper to observe that the young Grass ought not to be grown for hay; neither ought it to get very long ere it is cut. In fact, it ought to be fed off, in order to encourage it to form a good sward; and, if need be, the older Grass may be grown for hay, or an additional cow kept in the summer months to consume the extra quantity of green food grown—as the Lucern ought also to be used as green food, and a plot of *Trifolium* affords more fodder in a green state than any crop whatever when it is good. But after it is off, the ground will require a good dressing with manure, and sometimes an excellent crop of Turnips will follow. The Potatoes require no further comment than is given in the earlier portion of these notes, only let them be secured before frost sets in. The routine work of the season will end in there being only 20 rods of tillage ground in the autumn to be dealt with. The portion of Wheat (80 rods) being sown with winter Beans after one or two good diggings, and the 20 rods that had been Potatoes might be sown with Winter Tares. It would, however, be better to reserve 20 rods of the Wheat plot to remain in fallow, or to sow with Turnips, in order to have the ground in early spring again for Potatoes. The cropping of the autumn of the sixth year will be thus:—

- 120 rods of Grass.
- 60 „ Winter Beans, in drills, to receive Swede Turnips between them in the spring.
- 20 „ White Turnips, being part of the last-named plot that had been Wheat.
- 20 „ Lucern as before.
- 20 „ Winter Tares where Potatoes had been.
- 20 „ Swede Turnips where *Trifolium* had been.

In the ensuing spring the Tares will be ready for use as soon as anything; and after they are done their site to be well worked up, and if damp weather, Mangold Wurtzel might be transplanted on the ground from some store-bed, and sown on some suitable place. The plot of White Turnips might be followed by Potatoes; and if the *Holcus Saccharatus* gave satisfaction, the remaining

20 rods of Swede Turnips might be sown with that crop. The cultivator by this time will have attained a considerable amount of practical knowledge, and be able to comprehend his requirements better than before: therefore, with this season's cultivation, we will close that of the "Stiff Land Farm," making, however, a few observations generally in another place on the routine work not particularly mentioned already. J. ROBSON.
(To be continued.)

EDGING ROUND A CARRIAGE ROAD.

A "SUBSCRIBER" wishes to know what would be the best for edging round a drive in front of a mixed border backed with shrubs with a margin of turf next the gravel? She would like something hardy that could be kept neat with little trouble. Would either Cerastium or variegated Mint do?

[Neither the variegated Mint nor the Cerastium will do as an edging round a carriage drive, or round a mixed border, anywhere in this latitude. But your question is a puzzle; whether you mean the new edging to supersede the grass verge, or to run along at the back of the grass in front of the mixed border. The carriage drive we know best runs up all the way from the lodge gate to the front of the house, and is bordered one-half the way with evergreens on both sides; the other half of the distance is planted only on one side, and that half is full of evergreens and half of fine-flowering deciduous shrubs, Roses (dwarfs and standards), Phloxes, Golden Rods and Michaelmas Daisies, Hollyhocks; and, in summer, Dahlias, standard Fuchsias, and ever so many odds and oddities. That half and this half are edged with the common evergreen Berberis (*B. aquifolia*) instead of grass verges; and you never saw a more neat or more comfortable drive, or one that gives less trouble to keep so.]

THE SCIENCE OF GARDENING.
(Continued from page 226.)

THE ascent of the sap, like the circulation of the blood, is increased in rapidity by an addition to the temperature in which the plant is vegetating; and when it is flowing from incisions made in a stem at various heights from the ground, a sudden reduction of temperature will cause a cessation of the flow from the upper wounds whilst it continues from those below.

These facts indicate most satisfactorily why the gardener finds his Vines, Peaches, and other plants in the forcing-houses injured by keeping them in a high temperature during the night. It is then, as in the animal economy, that the individual functions are renovated by a temporary repose, and if left to the dictates of healthy nature, the sap, like the blood, flows at night with a much diminished velocity.

If the night is cold, the ascending sap actually sinks back—a fact observed by Hales and Knight, and further established by the experiments of M. Biot. Thus showing that, as in most animals, it is the daily period of diminished circulation and of consequent rest. Hales found that a Sunflower which perspired 30 ozs. during a warm day, perspired only 3 ozs. during a warm, dry night.

In man the number of inspirations are diminished during sleep, in the ratio of six to seven when awake, and the pulsations in the ratio of three to four per minute. The temperature of the body is about 2° lower at midnight than early in the morning.

It is evident that in plants as well as in animals, light acts as a stimulant, and darkness, or the absence of light, acts as a sedative. Thus, it is known that the leaves of many plants assume a very different position in the night from what they have had in the day. These positions are not the same in the case of all leaves that are said to *sleep*. They differ with the species in which the change of position takes place. Simple leaves that sleep are affected in their totality. Compound leaves that sleep are not always affected in their totality, but only in some of their parts.

Of simple leaves some,—*the opposite*, meet by the bending in of their petioles, and sleep face to face, as in *Atriplex*; some,—*the alternate*, by the folding in of their edges, so as to embrace the stem, and cover the flower in their axil, as in the Mallows; and some by the bending down of the leaf-stalk, so as to cover the flowers below, as in *Impatiens*.

Of compound leaves, some are trefoils, and some winged, forming the ground of a primary division. Of trefoils, some bend their leaflets so as to bring the base and summit nearly into contact, leaving a cradle-like cavity in the middle, which sometimes protects the flowers, as in *Trifolium incarnatum*. Some bend them by the lower half, and leave the summit divergent, as in the Melilots; and some bend them down so as to face by their inferior surfaces, as in *Oxalis*. Of winged leaves, some erect their leaflets, so as to meet above the petiole, face to face, as in *Colutea*. Some bend them down so as to meet below the petiole by their under surfaces, as in *Acacia*. Some fold them up, above and along the common foot-stalk, so as to overlap one another, in a direction looking to the summit of the petiole, as in the genus *Mimosa*, in which there is this singularity, that while the leaflets bend up, the main petiole bends down. Lastly, the leaflets of *Tephroisa Caribæa* fold up and overlap like those of *Mimosa*, but in a direction looking to the base of the petiole.—(*De Candolle, Phyto. Veg.*, 857.)

No other evidence need be given that plants are benefited by exposure to a lower temperature at night than that to which they have been subjected by day, than the fact that wherever a plant grows naturally, there it is subjected to such daily alternations of temperature.

The following table exhibits the average day and night temperatures at a few places in each month of the twelve:—

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
London	{ 40·3 31·4	{ 44·6 33·7	{ 48·1 35·3	{ 55·4 39·4	{ 64·1 46·5	{ 68·4 49·8	{ 71·5 53·8	{ 71·2 53·9	{ 65·7 48·7	{ 57·1 43·5	{ 47·2 36·5	{ 42·7 33·9
Canton	{ 57 45	{ 58 45	{ 71 60	{ 76 69	{ 78 73	{ 84 79	{ 88 84	{ 86 83	{ 84 79	{ 76 70	{ 68 61	{ 63 52
Sadiza (Assam) {	60·5 47·5	61 52·5	69 56	73·5 66·5	78·5 70	83·5 76·5	83·5 76	84 77	85 76	80 69·5	77 64·5	......
Mussooree { (Himalaya)	51·5 34·5	63 27	69 37	77 41	78 41	74 61	71 63	69 63	69·5 57	66·5 48	57 48	55 29
Macao	{ 72 53	{ 71 49	{ 77 55	{ 83 66	{ 85 71	{ 89 74	{ 92 81	{ 90 79	{ 88 76	{ 86 78	{ 80 80	{ 70 57
Madras	{ 81·1 72·7	{ 83·6 72·6	{ 87·6 76·9	{ 91·4 81·0	{ 92·9 82·4	{ 93·0 82·0	{ 92·3 81·5	{ 90·2 80·1	{ 88·5 79·2	{ 84·9 77·4	{ 82·8 74·3	{ 80·6 73·0
Dodabetta { (Neilgherry Hills)	58·6 44·4	56·7 45·9	61·7 47·1	61·3 51·2	62·4 49·9	54·9 46·1	54·4 47·9	55·1 46·8	54·9 47·4	55·6 48·1	55·6 47·2	54·0 45·1

Such a table as this of the lowest and highest temperatures to which the plants of every country are subjected, would be one of the best guides for their culture that could be bestowed upon the gardener. Tables of average temperatures, jumbling together those of the day and the night, are worse than useless, for they often mislead. Who can tell from a general average of 60°, whether the day's highest is 80° and the night's lowest 40°; or 70° and 50°; or 65° and 55°? The best light we can throw upon such dark, uncertain tables, is to remind the gardener that the average night temperature of any place is usually from 10° to 20° lower than its average day temperature.

In addition to this we will add M. Boussingault's list of the maximum and minimum temperatures favourable to the particular vegetables in the success of which man is more especially interested.

Coco or Chocolate Bean	82 to 73	Pine Apple	82 to 68
Banana	— to 64	Melon	— to 67
Indigo	— to 71	Vanilla	— to 77
Sugar Cane	— to 71	Grape Vine	79 to 74
Cocoa nut	— to 78	Coffee	— to 66
Palm	— to 78	Wheat	74 to 59
Tobacco	— to 65	Barley	— to 57
Manihot (Tapioca)	— to 72	Potatoes	75(?) to 49
Cotton Tree	— to 67	Flax	74 to 59
Maize	— to 59	Apple	72 to 59
Haricots	— to 59	Oak	67 to 61
Rice	— to 75		

That plants do become exhausted by too unremitting excitement is proved to every gardener who has a Peach-house under his rule; for if the greatest care be not taken to ripen the wood by exposure to the air and light during the summer, no Peach tree will be fruitful if forced during a second successive winter, but will require a much more increased temperature than at first to excite it even to any advance in vegetation.—J.

(To be continued.)

GOURDS AND CUCUMBERS FOR ORNAMENT AND USE.

"I have no glass, but a nice little greenhouse and a plant-stove at a little distance from each other. The space between is backed by a rough wooden fence, and also a space at each end. By means of additional poles placed in a four or five-foot border I wish these spaces next August and September to present a wild tropical appearance. Could I employ Cucumbers, Snake Gourds, Club Gourds, Warty Gourds, and Monster Gourds to effect this object, and how? And should I be able to turn them to any use or profit afterwards?"—QUID.

THE idea is a good one if not too generally adopted. For a season now and then a very striking effect will be produced. Scrambling over a fence, and hanging in festoons from rough stakes and arches, the plants will appear much more elegant than when crawling on the ground in the usual way. Even the common garden Cucumber would be much more at home against such a fence or up a pole in the summer months than growing on the ground in ridges.

Perhaps the two most singular of this tribe are the Squirting Cucumber (*Momordica elaterium*), which throws out its pulp with considerable force when the fruit is ripe and the stalk is interfered with, but which is of a poisonous character, and not safe to be used at all, either when green or ripe; and the Snake Cucumber (*Cucumis anguineus*, or *Tricosanthes anguina*), which, from its great length and snake-like appearance, is very interesting to look at, but which it would hardly be safe to use in any way, though it is said the natives of India frequently eat it. Neither of these would answer quite satisfactorily, unless near the end of the respective houses, and in a fine season; but two or three plants of each could be grown so as to try them on the fence, or the end of the house, and four plants of the Snake Cucumber at least, and one or two of *Tricosanthes colubrina*, if deemed desirable, might be grown so as to have one at the end of each house inside, and thus form a connection between the internal and external scenery. One thing we must not omit to mention, and that is, that we have seen ladies much shocked at the first sight of these huge serpents when unexpectedly seen on entering a house; and people who have a taste for the curious should endeavour to enjoy it, if possible, without shocking the nerves of those not so strong as themselves. These should be sown in the plant-stove about the beginning of March; be potted off separately in four-inch pots in peat and loam; shifted again into loam and rotten dung as soon as they need it, and the shifting continued until you get each plant into a 16-inch pot, and use good loam with some good rotten, well-aired cow or other dung to enrich it. Drainage must be well attended to, and pieces of charcoal in the compost to keep it open will be an advantage. If the dung has not been well aired and dried before using, do not put it in the soil at all, but place a little on the surface, and use rich, clear manure waterings. The finest specimens will be produced at the two inside ends of the stove-house.

Were it not for the conveniences and the desire to have ripe fruit early, the seeds of all the others might be placed in the ground at once towards the end of May, the ground previously being frequently turned over after each sunny day, so as to dig in heat and sunbeams; and the surface left rough at night, to prevent the radiation of the accumulated heat. In fine sunny seasons the ground may thus be like a hotbed by the beginning of June. Under the circumstances referred to we would sow all the others in the stove-house in the last week of April; pot them off, when fairly up, separately into four or five-inch pots, using sandy loam and leaf mould. As the roots fill the pots remove them to the greenhouse, and give no air opposite to them for a few days; then shift again into a size larger, giving each plant a neat little stick to hold it up securely, and enable it to run freely, growing, all to one stem. Keep close a little after potting, and then gradually give more air until they have it night and day before the end of May. Then, having the ground well pulverised and enriched, turn out each plant separately in the last week of May, or the first week in June, and fasten the shoot to the rail or post. When that shoot has got nearly to its height stop it. This will cause the side-shoots to break freely. If they show no signs of fruit when grown two or three joints long, stop again; but they will generally be fruitful enough, and will require thinning rather than otherwise, if handsome, ripe fruit are desired. If the fence is some eight or nine feet high, each plant ought to have a yard or four feet in breadth. If the fence is lower, give more space. When first turned out, choose a

shady day, and shade a little with a branch for a few days if the weather should be hot and sunny. Water for the first month in the forenoon, using water heated to 70° or 80°.

Of Cucumbers, *Cuthill's Black Spine*, *Stockwood Ridge*, and *Gherkins* would be the best. All these may be used when young in the raw state, or stewed or boiled. I have never tried ripe Cucumbers, but some have told me they are little inferior to ripe Pumpkins. Unless in hot weather I do not consider Cucumbers in any quantity, and however prepared, to be very safe in the way of food. There is much truth in the old recipe ascribed to Dr. Johnson—"Slice them very thin, and encase them with plenty of oil, pepper and salt, and then pitch them to the rubbish-heap." Used in moderation they are much relished by many. As to stopping and training they just need as much and no more on a fence than they do on the ground, and will thrive and bear much better. By applying to some large seedsmen you may obtain some spotted and variegated species, but I should be very shy in using any such kinds in any way at the table.

The next most useful are the true yellow Vegetable Marrows (*Cucurbita ovifera*), and the deeply-cut pretty Custard Marrow. To my own liking the last is one of the sweetest used when about the size of a turkey's egg. The others are also very nice when used about three inches long, and one inch and a half in diameter, boiled until they are soft enough, and then split up and the pulp removed, and eaten with salt, pepper, and a little butter. I am, however, no great judge, as they seemed so luscious I never could manage them above once or twice in the year. Most seedsmen have many varieties of different shapes and colours, striped, and variegated, which are more showy as ornaments than the above, but which are not better for use.

The Pumpkin group (*Cucurbita pepo*), is greatly diversified in size, shape, and colour, many sorts being striped and variegated. The Spanish Pumpkin is one of the best varieties for using when young; but species and varieties are so continually changing, that a respectable nurseryman or seedsman would be the best source to apply to for obtaining a beautiful variety. The same may be said of Pumpkin Squash (*Cucurbita melopepo*), warty Gourds, orange Gourds, and the great mammoth yellow Gourd (*Cucurbita maxima*), which last has been grown to above two hundred pounds in weight, with a yellow skin and a solid yellow flesh, and which will keep a long while in a dry place, and may be used boiled as a vegetable or mixed with Apples and other things in tarts. I find that in this neighbourhood all kinds of Vegetable Marrows, Pumpkins, and these Gourds are made into all sorts of Pumpkin pies, mixed both with fruit and with meat. This large sort, however, would hardly do so well on such a narrow border—it would be apt to rob the others that had little of its gross strength. The best way to manage it would be to give it a place in the garden with a good exposure to itself; raise the ground into a hillock some six or eight feet in diameter; mix the soil well with rotten dung, and air the soil well before turning out the plant. When growing freely, whenever one or two fruit are set and swelling, pick off all others as they appear, and use them if you like. Give plenty of manure water as fast as the plant can drink it, and vary the kind of manure in the water frequently; and then, when the fruit is full grown and ripe, cut them with as large a stalk as possible, and place them near the fence among the other kinds. Even if your friends discover this little bit of artifice, they will not be inclined to blame you severely.

The last group I would mention are the Bottle and Hercules-club Gourds (*Laganaria vulgaris* and *clavata*, &c.) The former when full grown resembling a beautiful Venetian bottle; and the other a huge club; with many other varieties, and these again of different colours, and some of which I have seen retain their beauty for several years in a dry room. These, however, in planting I would keep as much as possible by themselves; so that, when young fruit for the kitchen or for pickling was wanted, these should be entirely avoided, as neither in a green nor a ripe state are they considered to be free from poison.

As already stated, the best plan for our correspondent to adopt would be to get from several of our best tradesmen two or three seeds of the most beautiful and singular kinds they possess. From what has come under my observation of late years, I believe that the wish for something tropical and singular in appearance is such a growing feeling, that it would suit those who had a good collection of these and other singular things to advertise them with a short description, so that purchasers could choose better for themselves than they can do now. Of the merits, whether as to beauty or usefulness, of myriads of varieties of these tribes that are grown on the Continent, in India, in America, and even in

Britain, I confess that I know little or nothing. Even in the way of ornament I believe that much may be done with them; and people will get tired of monotony, however pretty it be.

R. FISH.

RAIN-FALL AT LINTON PARK,
KEPT DURING THE LAST FIVE YEARS, WITH SOME NOTES ON
THE YEAR THAT IS PAST.

1859.	Rain in inches.		Number of days rain.		Number of days frost.	
	1859.		1859.		1859.	
	1859.		1859.		1859.	
January	1.61	11	16	10	5	93
February	1.17	11	10	5	5	151
March	1.66	9	14	10	2	29.55
April	1.89	10	7	10	10	93
May	2.22	7	10	10	10	116
June	1.75	10	10	10	10	72
July	2.01	10	10	10	10	137
August	2.13	10	10	10	10	24.33
September	3.34	18	10	10	10	89
October	4.28	20	10	10	10	169
November	3.67	13	10	10	10	27.79
December	3.82	18	10	10	10	104
Total	29.55	151	93	116	72	20.84

DIRECTION OF THE WIND AT MID-DAY IN 1859, AND NUMBER
OF DAYS.

	E.	S.E.	S.	S.W.	W.	N.W.	N.	N.E.	Not ascer- tained.
January	0	0	1	19	1	3	0	7	...
February	0	2	3	14	0	8	1	9	...
March	0	0	0	17	1	8	1	4	...
April	0	6	3	5	0	11	2	3	...
May	1	9	0	0	0	3	1	17	...
June	0	13	0	9	1	4	0	3	...
July	0	10	0	12	2	2	0	4	...
August	2	1	0	15	0	5	0	8	...
September	0	1	0	12	0	3	1	12	...
October	0	6	2	5	3	1	2	12	...
November	5	3	4	7	1	5	1	4	...
December	0	2	8	10	1	6	0	4	...
Total for 1859	8	53	21	125	11	59	9	78	1
Corresponding num- ber in 1858	16	71	16	73	24	58	19	87	1
Ditto in 1857	14	47	37	81	37	38	21	86	4
Ditto in 1856	14	44	34	99	29	42	28	72	4
Ditto in 1855	21	32	23	63	36	48	25	115	2

METEOROLOGICAL NOTES FOR 1859.
The greatest amount of rain that fell on any one day was on

October 17th, 0.95 of an inch; but on November 6th and 7th, 0.81 and 0.50 inch fell respectively.

The highest range of the barometer was January 8th, and December 10th, both 30.38. The lowest was December 26th, 28.18. Such a sudden fall in sixteen days as this is very unusual; but a similar case occurred in November. The barometer on the first of that month being 28.44, while on the 10th it had risen to 30.35.

The longest period without any rain was from July 4th to 19th, and the longest period without a dry day was from October 23rd to November 8th.

The hottest day was July 12th, thermometer 92°. The coldest night that preceding December 19th, thermometer 15°.

The winter and spring months of the past year were dry, and the summer still more so. The autumn has been unusually wet; making the rain-fall greater than any of the four preceding years. These features do not appear to be general throughout England; for in the central counties there was no lack of rain in the summer months, while in Devon and Cornwall the season has been an extraordinarily dry one, and in the northern counties there is a like report. But the outcry for water in the past season has been greater than I ever remember, so many wells and streams being completely dry that were never known to be so before. This, no doubt, arose from the small rain-fall of 1858, and the remarkable dry winters of 1857-58, and 1858-59; the showers we had in the growing seasons of both these years being all absorbed on the surface. After this, however, we may expect to have all our sources of supply duly replenished by the copious rains of the past autumn, which, as will be seen by the above table, have been greater than that of any preceding season on record.

In temperature, the summer that is past may be regarded a warm but not a long one. A severe frost set in on October 22nd, destroying all tender plants. The month of July was the hottest, the whole season being much like 1858; but fell short of 1857, for general and late prolonged warmth and fruitfulness. Yet, on the whole, it may be regarded as a fine season. The corn crops, though not heavy, were a fair average; but the hardy fruits were thin, and the sample far from good. Potatoes were attacked early in the season with blight, but partially recovered again when the dry weather set in; but the crop was indifferent. Many vegetables were scarce; there being little or no growth until the autumn rain set in about the middle of September, and frost overtaking them on the 22nd of October, the growing season was short; but it was rapid with many things, as Turnips, Celery, and Grass. The latter being quite withered up at the time alluded to, and on stiff lands cracks two feet deep and upwards were to be met with everywhere, while all ponds, &c., were dry, and cattle had to be driven a considerable distance to water in many places. Where machinery had been driven by water, it was, in many cases, entirely stopped; but the bountiful rains of the past autumn will have restored the usual balance of things, by renovating all the usual sources of supply.—J. ROBSON.

GIGANTIC PAMPAS GRASS.

"F. W. S." (Melton), notices in recent numbers of THE COTTAGE GARDENER several accounts of the culture and growth of the Pampas Grass in different localities. Perhaps the Editors may think the following worthy of record, as affording an instance of more rapid increase than any of those reported in THE COTTAGE GARDENER.

A plant of the female, treated much in the same way as the specimen described at p. 83, but quite exposed to the east and north-east, produced this summer 130 spikes of blossom, averaging nearly 11 feet in height. It blossomed for the third time in its present situation this summer; the spikes numbering the first year 30, and the second 62.

"F. W. S." may add that the plant has always been copiously supplied with water, and occasionally with liquid manure.

Several beautiful young specimens of *Pinus insignis* have suffered dreadfully from the sharp frost of last month; in fact, to all appearance, they can never recover.

VINES FROM UNRIPE EYES.

IN your magazine for June, 1857, Mr. D. Beaton gave an account of a visit to Mr. Weeks' nursery and winter garden, in which he mentions a method of obtaining ten or twenty Vines from one eye in one year; and also he almost promised to tell us

how this is done, but I have seen no further reference to the subject.—W. B.

[It is now an old question which is of little practical value to any one except to those nurserymen who are engaged in rapidly growing and multiplying new Grapes, and they all know it already. It was first discovered by an accident. Some Vine or Vines had too much heat, or frost, or drought in the midst of the growth. They stood stock still, and looked queer; but, having no time to lose, the grower cut them back to the last eye, and it then occurred to him that eyes half ripe with a leaf to each would root and run like a ripe eye without a leaf. He tried, and they did, and he had fifteen Vines that year from one eye, twelve from another, and so on. After that he put in his ripe eyes singly in very small pots early in January, and at the end of April he cut down all his young Vines to the last eye, and made each joint into a cutting, shook out the balls, and started with the young-cut Vines, just as if they were old-rooted plants. The one eye started almost next week, and made a far better Vine that season than any he ever raised from a February start. A gardener might, therefore, improve young Vines of that season if he planted them in May, and as soon as they took to the border cut them as above.]

ROTATIONS AND PREPARATIONS IN THE VEGETABLE GARDEN.

At this dormant period good cropping requires that the whole scheme for the ensuing year be definitively laid down and adhered to; and I advise all young gardeners to pursue a similar practice to that I have followed for the last twenty-five years; which is, to look over the whole garden, note-book in hand, and enter the present or last crop, together with the preceding year's cropping on the same plot. It would be attempting too much to go back beyond that—it would render the whole too complex; besides, it is scarcely necessary. As an instance, let us suppose that the quarters of a garden are nearly rectangular, which is generally the case. I will take the case of one quarter only by way of illustration.

North-west quarter; west end.

4 Strides of Asparagus—no change. Then

6 Strides Celery succeeding last year's Cabbages.

8 ditto last summer's Peas succeeded by Onions.

And thus until the end of the quarter is reached. The aspirant may then settle the rest over the fireside in sharp weather by a thorough consideration of the periods at which the products must be had, and also the proportion of each; and in the latter some judgment is required. It will be here seen that it is impossible to lay down any fixed scheme of rotation, as a farmer may do with his fields. It is altogether another affair; for only behold the variety of things there are in a good vegetable garden!

For instance: It may stand as a maxim that Potatoes are good preparers for Cabbages. Well, on looking to the note-book we find twelve yards of Potatoes; but if Cabbage must succeed, then we only require six yards of Cabbage, so that six yards of the Potato-ground must pass on to something else—and so on with many other crops. But this is no reason why eligible rotations should not be pointed out.

Now I am sorry to observe that science has done little for us in this matter. I fear a learned chemist would make but a sorry hand at scheming such a rotation of crops under such circumstances as I have before alluded to. If it had been so, there are plenty of intelligent gardeners—men of good education and considerable reading, who, far from being prejudiced, would speedily adopt principle instead of mere practice. The latter, however, in experienced hands generally succeeds admirably: as witness the excellent produce and variety to be found in the gardens of the nobility, &c. Nevertheless, there are a few maxims worth bearing in mind, and which may serve to bias the general scheme. I will proceed to them. It is well known that the whole of the Cabbage-worts, from the Cabbage up to the Cauliflower, are liable to the club; and, indeed, if there were no club, they do not like to succeed each other: therefore, a change must be sought for them. I prefer the newly-trenched soil; for in this family we have—say Cabbage at the lowest end of the series, Savoy, Brussels Sprouts, the various Kales, the Broccolis a host, and Cauliflowers, besides a whole lot of intermediates and new puffs every season.

In my practice I always regard some crops in the light of what I call preparers, which, whilst they themselves are absolutely necessary as forming part of the system, at the same time leave

the soil in a fresh condition as to future vegetable crops. Such, as I regard them, are as follows:—

1st. All bush fruit.

2nd. Asparagus.

3rd. Strawberries.

4th. Artichokes.

These are, in the main, crops which stand in the same plot for two or three years—some much more. This circumstance with reference to vegetable culture is tantamount to a state of rest; and since most of these things receive manure almost annually, the soil must be in good heart when they are broken up.

But I have another class to point to in this case—ordinary vegetables of only a few months' standing, if not preparers as to rest, at least are quite innoxious to their successors. Now all this proceeds on the assumption that the residue of past crops when in a corrupting condition is prejudicial to certain other crops, although innocuous—nay, beneficial—to some others. Of such matters, although at times doubted formerly, enough has since transpired to show there is indeed a foundation for the opinion. Plants may have a power of selection; but the worst is, they have not in all cases the power of rejection.

What makes crops so signally to flourish, of almost any kind, when growing on fresh-enclosed land, which has been for a good while under grass? What but that the quantity of organic matter they have is all congenial to their wants? But in old gardens, especially if they have been badly handled, there is such a mixture of deleterious remains, that the crops take up what they should not.

The class I alluded to before this digression I will point out. Potatoes prepare for any crop. Peas succeed very well with me on ground where any of the Cabbage-worts had grown. Celery will make good land for anything. Spinach, Lettuces, and, indeed, anything of the Salad kind; Endive amongst the rest. But in any case let not two crops of any of the Cabbage-worts succeed—let there be a change of some kind. I had forgotten to name that any of the family may succeed Onions or Carrots. In all these cases I have said nothing about the question of manure or no manure, as it stands on another basis. But this will have to come in for consideration at last.

It ought to be well borne in mind, too, the habits of the crop as to deep or shallow rooting, and as to their mode of rooting collaterally. What practical gardener would think of trenching thirty inches deep for such things as Spinach, Endive, Lettuce, &c.? And, as to manuring, who would think of doing so to a last year's Celery-bed, be the successor what it may? Therefore, after laying down a course of cropping, the question of manuring must wind the matter up as far as the head is concerned; the rest will be left chiefly to strong backs and elbows. One thing I may name. I have been speaking chiefly with regard to what I should call primary crops. But let the inexperienced consider that there are a host of minor articles, which, although as useful as any in their day, may not bias the scheme before alluded to. There are all the autumn and winter Salads, winter Spinach,—most important in families of any distinction; besides many other things. But so much depends on the movements and wants of a family; and herein lies one of the first duties of a gardener—to learn their movements, and, setting aside his own conceits, to provide for the probabilities. For my part, my worthy employer having been an M.P. and something more for nearly thirty years, and being a gentleman of fixed habits, I know and can count on his movements with tolerable certainty.

But a word more about manures. I would here ask what it is that makes the side-fibres of such spindle-shaped roots as the Carrot, Parsnip, &c., to multiply and become inconvenient? Doubtless, the temptations that exist in the upper soil in the shape of decaying or other manurial matters, by which those fibres are induced; and instead of a fine, long Carrot, straight as a gun-barrel, and half a yard in length, we have a lot of crooked, stumpy, bandy-legged things, full of fork and other protuberances. And, doubtless, this is one reason why Carrots from farming land are generally far superior. So in the manure question, it is not only how much manure, but how to apply it.

R. ERRINGTON.

PORT WINE VINTAGE OF 1859.—Messrs. Clode and Baker say, "It is unfortunately our duty to report another bad vintage in the Douro; the *arrolamento* recognises the quantity of wine produced as 17,292 pipes, and the *Provadores* are expected to class about one-third of that as fit for shipment to England; we are, however, of opinion, from observation during the vintage

that no fine wine was made, and that the vintage 1859, in point of quality, must be looked upon as a total failure. The importation of port wine into Great Britain during the past year, as per statement annexed, amounted to 14,530 pipes, being in excess of 1858 by 2938 pipes. These supplies have been placed upon the market with so much good judgment, that prices have been very little disturbed, the trade having taken them up only upon positive requirements, and not as heretofore, in anticipation of demand. This feeling we think will prevail until we get vintages on which we can more confidently rely, and may be the means of keeping down prices; notwithstanding the palpably decreasing stocks held duty paid and in bond, which latter depreciation amounts to at least 4000 pipes upon the year, and is 11,400 pipes less than in 1858. We continue to hold a favourable opinion of the 1858 wines, but past experience tells us that vintage wines require much more careful treatment than the trade in England have been accustomed to adopt, both in fortification and in being constantly racked from their lees; we therefore advise our friends not to neglect these necessary precautions, which have ever been most carefully observed in every well-regulated Lodge in Oporto, and for want of which attention, so many wines kept two or three years in bond have been injured or become utterly worthless."

SOME OLD-FASHIONED FLOWERS.—No. 4.

THE MIMULUS.

THERE is no flower that I am acquainted with deserving of more notice than the *Mimulus*; and had there been one-half the pains taken with it which have been bestowed upon the *Calceolaria*, I believe it would long since have surpassed it both in richness of colour and beautiful markings.

The *Mimulus* has long been a great favourite of mine, and I generally grow a collection: therefore I am in a position to state that no flower is more showy than large specimens nicely grown, and certainly no flower is more easy to cultivate.

I have frequently wondered why prizes are not offered for a collection of *Mimuluses*. Prizes have for years been given at all the great London exhibitions for a collection of *Calceolarias*. The competition in these was never very great—seldom more than two or three collections were ever staged at a time either by the nurserymen or private growers; and very indifferent, indeed, at times were the specimens shown. Now I would suggest, as an encouragement to the cultivation of the *Mimulus*, that prizes should be offered for it, and I am certain the competition would be greater in this class than in that for the *Calceolaria*. Then, and not till then, shall we see the *Mimulus* grown as it should be, or, as they say in the north, "in its Sunday clothes." The offer of a silver cup for a collection would bring such specimen plants on the table as probably were never seen before. Perhaps the most successful raiser of this flower is A. Clapham, Esq., of Scarborough, to whom we are indebted for some fine varieties.

I trust Mr. Beaton will chance to read this paragraph. If he take as much interest in this flower as I do, and think it really worthy the exhibition-table, it cannot be in better hands to be brought out; and should he take any interest in it, we may soon expect to see such plants of the *Mimulus* exhibited as will astonish the old admirers of the so-called "Monkey Flower."

No plant can be propagated with more facility than the *Mimulus*, for it strikes root from nearly every joint. Cuttings, or pieces, taken off early in autumn will, no doubt, be sufficiently rooted to admit their being potted at once into five-inch pots, which should be placed in a cool frame and liberally supplied with water, frequently watering the plants overhead with a fine rose. But little air should be given during the first fortnight; after which admit it freely in the morning, closing rather early with the afternoon sun. As soon as they have filled the pots with roots give them a liberal shift into eight-inch pots, and carefully peg down each shoot in the mould in order that they may emit fresh roots. Continue to frequently sprinkle them over head in dry weather, and on dewy nights leave them fully exposed, as they delight in plenty of moisture.

But little is gained by stopping the *Mimulus* more than once; for if kept well pegged down the shoots break out at nearly every joint, and soon form sufficiently large and handsome specimens. The last shift should be given them about January, when liquid manure will be found very beneficial. If the plants have been kept sufficiently moist, green fly will not be found at all troublesome.

Little more can now be done to secure good specimens, with the exception of neatly tying and keeping them sufficiently moist. If from neglect they become pot-bound, they will be benefited by being placed in a pan of water during their blooming season. After they have done flowering and the seed gathered, the flower-stems should be cut off, and the plants placed in a shady situation or turned out into the open borders, where they will flourish freely; and if a little fresh compost be placed round them they will quickly take root, and may be parted in the autumn into portions best suited to the convenience of the cultivator.

The pots should be thoroughly drained, and the soil should consist of one-part fibrous loam, one-part leaf mould, one-part rotten cow-dung, one-part sand or mortar rubbish, with a portion of fibrous peat, all thoroughly incorporated together and used in a rough state.

Seed may be sown from May until July in pans or in the open border. The soil for this purpose should be very fine and pressed firmly down previous to the sowing of the seed; which, in consequence of being so very small, should not be covered but merely pressed down. The young plants for pot-culture should be potted off as soon as they are sufficiently large to handle, and should receive the treatment described above. Those intended for borders should be pricked out into a kind of nursery-bed.

The *Mimulus* may be successfully cultivated out of doors; and if covered with ashes, sand, or old tan during the winter, it will make a fine spring display of various-coloured flowers.

Seedlings should be carefully attended to and protected from slugs until they become sufficiently established, when they will be found to repay amply the care and trouble bestowed upon them.—EDWARD BENNETT, *Osberton*.

HEATING A VERY SMALL GREENHOUSE.

WILL you inform me what the best mode would be of warming a very small greenhouse (some nine feet by five feet)? I wish an apparatus that will entail as little attention, and at the same time be as economical as possible. Gas is not obtainable here. Coke the same. I am, therefore, reduced to coals and cinders as fuel. I have used for some time one of Deane's "suspension stoves," using cinders instead of coke, but I cannot make the fire keep in all night, and, consequently, am unable to maintain the necessary temperature in severe weather. In the late frost the thermometer sank below 32°, and I lost several of my pets. I wish the night temperature never less than 40°.

Will you also kindly tell me what soil is best suited for the *Deodara*?—A. R.

[The very smallness of the house is the difficulty. You do not say where the house is situated. Could you not heat it from your dwelling-house? We are not sure if we know exactly what kind of stove you have. We have no faith in any stove for a greenhouse that does not have a pipe or chimney to convey the smoke, &c., outside. If the stove is very small, it would not burn all night if you went to bed early, nor would that be often necessary, as the heat contained in it, and thrown into the atmosphere of the house, would keep out any common frost. The frost we had was very severe, and in such a case, if the stove were very small, it would need fresh filling a few hours later than usual. We mention this, because we know of cases where the stoves were blamed, when the carelessness of the person that attended to the stoves was rather in fault. In such a small house a large stove would be a great annoyance, and a little extra attention in severe weather would be by far the lesser evil. We were told lately of a house five times the size of yours, heated by a flue, when during the late frost most of the best plants were irreparably injured, and the flue got all the blame, and a little work is likely to be afforded to some of our friends who put up their hot-water apparatus so well. It is all good for trade; but the truth must at times be spoken, and that flue we firmly believe was quite sufficient to raise the house to 60°, even in the hardest frost we have had this season. But when an amateur takes all the management, and goes to bed at the usual time, and puts on as much fire as would keep out two or three degrees of frost, he pays rather dear for his want of outlook, by tumbling down a good flue and substituting a hot-water apparatus. Under the same circumstances we predict that the water would be less serviceable than the flue, as the pipes would sooner cool than the flue after the fire went out. Our correspondent, therefore, we are sure will excuse us if we would advise a further trial with his stove, or one a little larger, if it is very small, instead of any

fresh move. These very cold nights do not last long; and minding the fire at twelve now and then, instead of ten, need not be looked upon as a great grievance. We would prefer clean cinders to any thing else for burning in such a place. In a previous volume will be found a description by Mr. Fish of a narrow greenhouse, but much longer than yours, heated by a very small iron stove, and which answered all purposes. The greenhouse was attached to the drawing-room up-stairs, and all the plants had to be carried out and in through the best apartments; but the gentleman and lady made it their hobby, and everything did well. In the same number an account was given how two such iron stoves were used in a large vinery, and how hundreds, or rather thousands, of plants were kept in such a vinery all the winter. For such small houses there can be no question of small stoves answering. In cold weather vessels of water should be placed near them to prevent the air being too much dried.

Deep sandy loam suits the *Cedrus deodara* perhaps best of all; but it is not at all particular as to soil, flourishing in stiff loams as well as on very light land.]

TURNING A WASHHOUSE INTO A PLANT HOUSE.

I HAVE a good substantial stone building in my garden used by a former tenant as a washhouse. It is 9 feet by $7\frac{1}{2}$ feet broad, 7 feet high, a window facing the east 3 feet square; also, a good fire-grate and boiler. The roof slopes to the south. Would you inform me the best use I could make of it for bottom heat, or growing plants, &c.? It has a slate roof which I purpose replacing by glass.—JOHN CLEGG.

[As it is, you might stuff your house full of old Scarlet Geraniums and Fuchsias, and open the door on fine days, and shut it in cold weather; and when severe frost have a little fire in your grate. If you had a glass roof, you could grow a great many things as well as keep them; but if you had the roof fixed, you would need a moveable ventilator in it, or else another window in the west wall. Did you want bottom heat? Then, supposing the fireplace and boiler are at the end farthest from the door, you had best insert two T pipes in the boiler, one near the bottom, and one near the top, and have a flow and return pipe,—one each side of your house,—and enclose them in a chamber, or surround them with brickbats, &c. In either case by allowing only a two-feet pathway, you could have a little platform or shelf on each side, two feet nine inches wide; and if there were a good draught in the chimney, and it was furnished with a damper, you thus might grow many plants. A shelf might also be suspended over the pathway, and thus little room would be lost. You must, however, be sure that there is a good draught to escape smoke.]

SUBSTITUTE FOR THE YELLOW CALCEOLARIA. BUDDING ROSES.

I BEG to say, in answer to Mr. Robson's question, that there are two excellent substitutes for yellow Calceolarias. In the first place, double yellow Marigold, when the right kind can be procured; but this is very difficult. I obtained them one year from Vilmoir, in Paris, and they were quite perfection; not more than five inches high, and a complete mass of flowers, lasting on till very late in the season. I have never, however, been able to get them true since, though I have tried numerous seedsmen. In a packet I do not get more than three or four plants of the right kind. Perhaps Mr. Robson may be able to inform me where would be the best place to try for them. They make even a better bed than *Aurea floribunda*.

2ndly. A yellow Pansy, I do not know its name; it was given to me by a friend who has used it for years. It formed his first line in his ribbon last year, and is really a most charming thing. By having a reserved supply pinched back it will keep in bloom from March till October. I shall be happy to send Mr. Robson a plant of it if he send me his address.

I have seen no notice taken in THE COTTAGE GARDENER of the practice of allowing a shoot of the wild Rose to grow along with the budded head. I have found it a capital plan. My Roses are far healthier since I adopted it. A bud of the wild stock is allowed to grow in advance of the budded variety, and draws up the sap through the stem more effectually than the bud does. Delicate growers which do not require all the natural sap are especially benefited. Some of my Roses were nearly

dead, upon which I encouraged a wild shoot as close to the head as I could get it, and they are now growing luxuriantly. Of course this bud must be kept in check, and not allowed to grow too rampant. It should only act as a safety-valve; it must not take the lead of the budded variety.

I believe the first person who recommended this practice was the Rev. W. Wilcocks, of Chapelizad, near Dublin, an enthusiastic Rose-grower; and the best proof of its merit is that the public nurserymen, who all sneered at it at first, are now adopting it, and growing their Roses with provision for it.—A SUBSCRIBER.

HORTICULTURAL SOCIETY.

A SPECIAL General Meeting of this Society was held on the 20th instant, at the house of the Society of Arts, John Street, Adelphi, for the purpose of electing various candidates who had intimated their intention of promoting the formation of the New Garden at Kensington Gore, by becoming Fellows of the Society. Rev. L. Vernon Harcourt, V.P., occupied the chair.

Amongst those elected were—The Duke and Duchess of Manchester, Duchess of Buccleuch, Marquis and Marchioness of Kildare, Marquis of Westminster, Marquis of Chandos, Earl of Derby and Lady Emma Stanley, Lady Overstone, Viscount and Viscountess Falmouth, Lady Harriet Vernon, Lady Belper, Sir William and Lady Gomm, the Earl of Dartmouth, Robert Hambury, Esq., M.P., T. Bazley, Esq., M.P., Lady Keating, C. Morrison, Esq., Lady Foley, Lady A. Manners, Gathorne Hardy, Esq., M.P., Earl Stanhope, Lord Bateman, Viscountess Boyle, Right Hon. Sir George Cornwall Lewis, Bart., Sir Charles Locock, Lord and Lady Taunton, Henry Wellesley, Esq., General Wylde, W. Jackson, Esq., M.P., J. Bramley-Moore, Esq., F. Hall Dare, Esq., the Dean of Canterbury, Lady Chantrey, and upwards of *three hundred* other ladies and gentlemen.

It was announced that a Special Meeting for the election of various members of the Royal Family would take place on the 31st January.

HORTICULTURAL SOCIETY—FRUIT COMMITTEE.

A MEETING of the Fruit Committee of the Horticultural Society was held at the rooms, St. Martin's Place, on Tuesday, the 16th inst. Rev. L. Vernon Harcourt, Vice-President, in the chair.

Prizes of one pound for the best, and ten shillings for the second best dishes, were offered for fruit to be exhibited at this Meeting, of the following varieties:—

NE PLUS MEURIS.—In this class there were four exhibitors. Those sent by Mr. Moorman, of Clapham, were grown on the pear-stock, and were coarse-grained and gritty, without much flavour, and with a cold acidity. Vincent Fenn, Esq., of Canterbury, sent a dish; all of which were, in consequence of being prematurely gathered, quite shrivelled, and exhibited no symptoms of ever ripening. Those from Mr. Sage, gardener to Lord Howe, Gopsall Hall, were coarse-grained, gritty, and with a cold acidity. The best were sent by Mr. Ingram, gardener to J. J. Blandy, Esq., of Reading, and though coarse-fleshed and gritty, had a fine flavour and aroma; and the prize was accordingly awarded to Mr. Ingram. In all the other exhibitions the fruit were so inferior in quality, that no second prize was awarded.

JOSEPHINE DE MALINES.—There was only one dish of this variety which was sent by Mr. Parsons, Danesbury, near Welwyn, Herts. The fruit was very tender and melting, and of a most delicious flavour. The first prize was awarded to Mr. Parsons. Similar prizes were also offered for the best and second best dishes of any other variety.

GLOU MORCEAU.—Of this variety there were seven exhibitions. Those of Mr. Moorman, from a standard, were not sufficiently rich. Mr. Hill, of Keele Hall, sent two dishes; one from an east-aspect, and one from a south-aspect wall. In both cases the fruit was too far gone. A very fine dish was exhibited by Mr. P. Stoddart, of Wivenhoe Park, near Colchester. The fruit was large and handsome, but in every case diseased at the core—a condition which is this season remarkably prevalent in this variety. Those from Mr. Wm. Merrick, of Breckendonbury, Herts, were coarse-fleshed and astringent, and the flavour was destroyed by the fruit having been in contact with straw or some such material. Those sent by Mr. Shepherd, of Wolverstone Park, near Ipswich, were large and handsome; flesh buttery, melting, juicy, and well flavoured. From Mr. Sage, of Gopsall Hall, a few were pretty good, but the others inferior.

WINTER NELIS.—There were five exhibitions of this variety, the exhibitors being Mr. Ingram, gardener to J. J. Blandy, Esq., of Reading; Mr. Moorman, from his garden at Bexhill, Sussex; Mr. Ralphs, gardener to Russell Sturgis, Esq.; Mr. Sage, gardener to Lord Howe; and Mr. Merrick. In all these cases the fruit was very excellent; but those sent by Mr. Moorman from a light loam, with a subsoil of clay naturally rather dry, and grown against a south-west aspect wall, were very delicious, and very much covered with russet. Those from Mr. Ralphs, grown against a south-east wall on a dark loam lying on an unknown depth of red sand, were also very rich and highly flavoured; but the flesh was firmer than in those sent by Mr. Moorman. The first prize was awarded to Mr. Moorman, and the second to Mr. Ralphs.

An extra prize was awarded to Mr. Hall, gardener to Mr. Lucas, of Roehampton, for a fine dish of *Easter Beurré*, which were very highly flavoured.

Prizes were offered for *Old Nonpareil Apples*; but as there was only one exhibition, and that of a very inferior description, no award was made. Also for *Golden Harvey Apple*, of which there was only one dish, and that also being of an inferior description a second prize was awarded to Mr. R. Webb, of Calcot, near Reading.

Prizes were awarded for the best dish of any other variety of Apple, the first being taken by Mr. Webb, of Calcot, with *Cockle Pippin*, and the second by Mr. Ivery, of Dorking, with *Mickleham Pearmain*—a good Apple.

Mr. Hill, of Keele Hall, sent examples of *Lady Downe's Seedling* and *Barbarossa* Grapes. The flavour of the former was very rich, and far superior to *Barbarossa*; in both instances the berries have just begun to shrivel.

THE CANARY AND THE BRITISH FINCHES.

(Continued from page 179.)

3rd.—THE GREENFINCH (*Loxia chloris*).

French, Le Verdier.

German, Der Grünling.

THE Greenfinch, also known as the Green Bird, Green Lintie, and Green Linnet, and called by some naturalists the Green or Lesser Grosbeak, is one of our commonest seed-birds. It is about six inches long, the beak is rather stout, and the tail shorter than some birds of its size, which have, I suppose, caused it to be classed with the Grosbeak by most naturalists. The general plumage is a yellowish-green, inclining to grey on the back and lighter beneath. The edges of the pinion feathers and the lower parts of the tail feathers are yellow. The hen is much duller in colour, being more greyish-brown, and showing very little green or yellow. Although the young of both sexes much resemble the female, yet the young males may at once be recognised by the yellow colour of the bastard-wing. With age they become much yellower. The nest is often placed among twigs, against the side of a tree, in a hedge, bush, or shrub, roughly built of roots, moss, and wool, in which they lay four or five whitish eggs, spotted with brown and slightly streaked at the blunt end.

They feed, in a wild state, principally on seeds, of which chick-weed and sowthistle seem their favourites; also, sunflower, radish, and many other seeds, and some berries. In winter time when pressed with hunger they enter the stack-yard, and will then eat any grain they can find, even peas. Some naturalists say they feed wholly on seeds; while others affirm that they feed their young on green caterpillars and small insects.

They are robust birds, easily kept in health in the cage. Their song, though not of the highest order, is sprightly and given with heartiness, but often interspersed with a harsh, purring note. In the spring they occasionally sing on the wing while flying from tree to tree. If taken young and brought up by hand, they may be rendered very tame and be taught to sing the notes of other birds.

They will breed with the Canary, but being a rather strong bird and very rough in his love-making, he is apt to frighten the hen Canary (and sometimes I am told even to kill her), consequently, it is difficult to get them to breed. I have found it a very successful plan to bring up the Greenfinch cock tame by hand, or place the Greenfinch eggs under Canaries, and let the young birds remain in sight of the Canaries all the winter; then, in spring, put the cock Greenfinch to a large, stout hen Canary. My greatest success has been from a half-bred Belgian hen Canary, from which I reared a dozen mules in one season. The

hen being a crested bird some of the young Mules were also turned-crowned. Bechstein condemns these hybrids as being no songsters, but it is probable he did not make them familiar, as I have found them very good singers, superior in my opinion to the Canary, as they learn the notes of all the birds in the aviary; but they are certainly very shy, and unless kept in the living-room, or used to company, they will rarely sing in the presence of any one, nor do they remain so long in song as the Canary. In colour they are siskin-green, yellowish on the breast, and more grey on the back; intermediate in size between the Greenfinch and Canary.

A friend to whom I gave the hen Greenfinches which I reared put one with a Belgian cock Canary, and reared three Mules. These differed from mine only in their tails being shorter, more like the Greenfinch.

There is, however, much difference in the breeding of the Greenfinch. Some will breed and rear their young as well and even better than the Canary; while others are so mischievous as to necessitate their removal.

Canary-seed, with an interchange of millets, oats, and plenty of green food, is, I consider, the best diet in confinement,—B. P. BRENT.

Just as the above was printing, appropriately enough we received the following communication:—

"It was, I think, in the year 1844, that as my sister and myself were taking a walk, we met a milk-boy with a miserable-looking half-fledged bird in his hand. We became desirous of possessing this poor starveling. A copper coin soon settled the matter of possession. We ran home with our charge, frantic with delight. I will not trouble you with our childish hopes and fears; hopes for its living; fears for its dying. Suffice it that the bird repaid our care in growing to be the most interesting bird that ever came under my notice. It was a Green Linnet or Greenfinch, a bird of great beauty when seen close at hand. We, in a short time, made this little creature so tame that any of the family might with impunity carry it about the house perched on the finger. If it saw any one sewing it would settle on the work and endeavour to pull the thread out of the needle; and, being a pugnacious little creature, would return again and again when driven off. It would also perch on the head and get quite furious if unable to extract a hair. Of course, at meal times it was as one of the family, taking its share with the rest. It was as whimsical as it was tame. It would never wash in any vessel but the one it had been accustomed to,—a common blue saucer. We have tried to tempt it over and over again without success, although very restless and uncomfortable for the want of its bath.

"The following spring my mother fell ill, and, being nervous withal, could not endure the peculiar cry which Dick uttered almost incessantly.

"The pet was condemned to be carried away far from home. We, with heavy hearts, put it in a little basket and took it more than a mile from our house. It was with difficulty we could be persuaded to let it out; but after many kisses and tears we at last did, and watched it as it flew into a little wood, and there lost sight of it. This you think was an end of it. So we thought. The next day a neighbour came to ask if we had lost our bird. We told him what had occurred. 'Well,' he replied, 'I do not know, but I think I have seen your bird.' It appears he went into his cellar, and on opening the door perceived a bird which lighted on his head. Our friend was rather startled at the visitor so little expected in that place, as no ingress could be obtained except by a disused chimney, down which the bird must have fallen or flown. The bird was brought in and proved to be ours. Now comes the question. How could it find its way back to within a door or two of its home? I might say to its home; as no doubt it did return to the house though unperceived. Did it follow us? I cannot say. We often looked back, but did not see it. It had some few times been hung out in its cage. Had it the organ of locality largely developed, and, taking a high flight, saw old familiar objects? A mile is a long way for a little bird to be taken; and small birds seldom fly high. I cannot answer the question myself; perhaps some of your readers can, although I do not think there has ever been a parallel.

"The pet once more became a member of the family, and, I must say, the most highly honoured among us. My mother, however, could not overcome her antipathy to its cry. So we agreed to open the window and let it go and come as it liked. All that summer it spent its days out of doors,—coming occasionally for food and water,—and its nights in its cage. Should the window happen to be closed when it returned home, a gentle tap with its

bill was the signal for it to be opened. If the signal were not answered it became impatient, and tap, tap, came fast and furious, until ingress was obtained. Towards winter its sojourns out of doors became shorter, and when winter fairly set in, Dick would never stir out. When spring returned its wanderings recommenced. At this time it fell into bad habits; its visits to home were not so frequent as during the preceding summer; the nights were spent wholly out of doors. We had a suspicion that Dick had taken up with some young amourette; and, as it paid less and less frequent visits, our suspicions were confirmed. It would occasionally appear, but for a moment, as much as to say, I have not forgotten the 'Old house at home,' and shall come again some day. The care of its family occupied all its time and attention. As the summer waned, Dick paid more frequent visits, until at last it finally established itself about the premises. It was very restless, in and out of the window incessantly. It was for some time about, but suddenly we saw and heard no more of it. It will come again, we said. No, it never came again. Whether it went away spontaneously, or fell a prey to the all-devouring cat, I cannot tell. Poor Dick! We mourned it many days, and with a genuine lamentation.

"I have read many anecdotes of birds; but I have never read one approaching to the sagacity of Dick. Its love of home, too, was so remarkable. Dick, I should say, was a native of Bath, and the scenes in its life which I have depicted were enacted in the same beautiful city."—WM. TREASURE, *Ross, Herefordshire*.

NOTES ON NEW OR RARE PLANTS.

CEROPEGIA THWAITESII. *Hook.* Nat. ord., *Asclepiadaceæ*. Native of Ceylon, and introduced into this country in 1851 by Mr. Thwaites.—A rather weak-growing, twining, subherbaceous plant. Branches moderately numerous, round, and perfectly smooth. Leaves opposite, on rather long petioles, ovate-acuminate, thin, smooth, and entire, minutely ciliated at the margin, dark olive green, often tinged with red above, paler below, where the veins also become prominent. Inflorescence axillary, on peduncles about an inch in length, slightly umbellate, with few flowers. Calyx composed of five, subulate, greenish sepals, tinged with red at the tips. Corolla about two inches in length, tubular, globose at the base, much contracted immediately above it, then gradually dilated towards the apex, mottled with dark brownish-red spots, which become more intense towards the apex of the tube. Limb composed of five, oblong, obtusely-ovate segments, erect, and united at the apex, and taking the figure of a cone, yellowish, and transversely marked above the middle with a band of dark purple. Column of fructification enclosed within the cone figure of the limb of the corolla.

This plant, and perhaps the whole genus *Ceropegia*, may be termed more curious than beautiful; but many are handsome, and the present species enjoys that character largely; and the curious structure of the flowers enhances its interest to those who are botanically disposed. The habit is excellent of its kind, being easily trained into any desired form: the most suitable, however, is any low figure, such as a balloon trellis. It is a fibrous-rooted species, and delights most in a light loamy soil, with a little peat or leaf mould well drained. Cuttings root freely in mild moist heat without a bell-glass. The intermediate-house is the best place to cultivate it in.

ARALIA PAPYRIFERA. *Hook.* Nat. ord., *Araliaceæ*. Native of swampy ground in the Island of Formosa.—A small, erect, sparsely-branching tree, destitute of spines, but having the stem very rough from the scars of fallen leaves. While young the stem, branches, and leaves, and all parts of the inflorescence, are, more or less, thickly covered with stellate woolly hairs, of a light rusty colour. Leaves alternate, very large, with very long and stout petioles, cordate, and cut very deeply into five or seven lobes, which are acute and serrated, texture soft and rather flaccid; the petioles are based by two very large subulate stipules. Inflorescence at the apex of the stem or branches paniced, with the flowers ultimately arranged in umbels, at first erect, but gradually assuming a horizontal or even drooping position; the peduncle and pedicels based by more or less large, subulate bracts. Calyx obsolete at the margin. Petals four, ovate, concave, acute, woolly only on the outer side. Stamens four, alternate with the petals; anthers curved inwards. Styles two, erect while young, but in age spreading outwards. Stigmas small, capitate.

A very handsome and distinct plant, forming a conspicuous

feature in a collection of stove plants, particularly so while in bloom, which is of long duration. The individual flowers are very small, but a strong plant produces thousands of them at once. The stem is extremely full of pith, from which the Chinese manufacture their celebrated substance called "rice paper," over which they manifested so much jealousy, that the real plant was procured with great difficulty, and introduced into this country only after "John Chinaman" had made us the dupes of his cunning deception. Loam and peat, the latter predominating largely over the former, with a free admixture of sand, are an excellent compost for this plant. A moist, not very warm, stove is the best place to grow it in. Propagates by cuttings of the branches, but they are usually scarce; the roots, however, make plants freely if the stronger ones are selected and cut into divisions of an inch or so in length, and treating them in the usual way of cuttings of this kind. It blooms in October, November, and December.—S. G. W.

A CHAPTER FOR THE COTTAGER.

CESSPOOLS—FENCES.

IN taking a survey of a cottager's garden there are several things to be borne in mind which ought all to be duly considered before anything rash is entered upon. If the garden is adjoining the cottage, which it usually is, it not unfrequently has to act as a sort of back yard to the house, as well as a garden. The piggery is often within it, as is also the cottager's store-wood or faggot-stack; and not unfrequently there is a sort of rustic shed for sheltering his tools, holding a few coals, perhaps, and the many et ceteras which the sweeping reformer coming from town, armed with sanatory powers, would be inclined to condemn; but he must not do so. The temporary wood-shed is a necessary part of the cottager's property or holding, and its presence, if put up by himself, shows thrift and good management. It keeps many things wanted in everyday use from suffering from the summer's sun or winter's wet. We therefore let that alone, unless we can give advice how to improve it.

But, somewhere in the immediate neighbourhood of the sheds we may find something against which our London friend will find scope to vent his indignation and protest—a sort of cess-pool, receiving all the slops of the house, garden refuse not destroyed by the pig, and other odds and ends. A lecture on cholera, fever, diphtheria, and the most virulent diseases likely to arise from such a receptacle near a dwelling, winds up by our scientific adviser insisting on its being removed to the north pole or some such place. This tirade, however, is closed by some quiet listener asking why he does not try to send all the refuse of the filthy Thames to the same place. The cottager also takes up the dispute, and points to his vigorous Savoy and other winter crops, as being entirely due to the soaking they had from that dirty-looking hole last September, when they were only little bits of things, having been planted after the Potato crop was taken up; and he also asserts that neither he nor his family ever took any harm from it, and mentions other cesspools much worse than his in his immediate neighbourhood. Our man in authority becomes softened down a little, and looking round him sees a place at the extreme corner of the garden, and close to the side of the piggery, where the cesspool might be made with a likelihood of doing less harm to the inmates of the cottage; and this suggestion, being assented to by all, the contents of the cesspool are spread on some vacant ground and immediately dug in, and a new one dug, the material from which fills up the old one, and the obnoxious cess-pool question is set at rest.

I have been more than usually prolix on this subject, as I know by experience it is one of the difficult ones which the well-disposed landlord has to enforce on his cottage tenants. I have, also, on various occasions, in company with others, looked over a number of cottage gardens and premises with a view to award prizes to the meritorious; and last summer we awarded as many as thirty prizes to the cottagers on one estate for good order and cultivation. Our attention was especially directed to the condition of the back premises, the state of the cultivation, the fences, and the other features about a cottage; and we congratulated ourselves that on the second and third years of our inspection there seemed a marked improvement. The cesspools were in most cases removed to the most distant part of the garden; the dung-heaps neatly covered over with earth, as well to prevent evaporation as for appearance and other improvements.

Cesspools, whatever may be said to the contrary, are indispensable in some shape or form in the country. Therefore, as necessary evils, let them be as far away as possible; and the industrious cottager will often be cleaning them out; and the operation being in summer mostly performed at night, the smell is generally gone in the morning. Besides which there is a wide difference between a cesspool in a garden surrounded by trees and vegetation, and one surrounded by brick walls. The greedy foliage of the former sucks in most of the gasses which form the most obnoxious feature in a cesspool; while in the latter case there is no absorbant, but, perhaps, human lungs, and the penalty is human death. I verily believe the utility of vegetation in the neighbourhood of these places has not received due attention, as I am convinced that herbage deprives such refuse of half its virulence. Nevertheless, to the cottager I would say, let the cesspool be as far from the door as possible, and let it be emptied pretty often; and when its contents are spread abroad, let them be worked into the ground at the same time.

THE FENCE.—This is not always the cottager's affair; but in some instances it is, and in all its appearance is, in some degree, due to the care he may bestow upon it. When the fence consists of one of those nondescript hedges, partly dead and partly alive, and composed of all manner of materials, it would be well to inquire if it cannot be removed, and a new Quickset hedge planted to replace it. Old hedges mounted on a high bank are endless sources in disseminating weeds, and their appearance is very unsightly. The only recommendation they have is the shelter they afford, and this must be taken into account before they are destroyed; but, in a general way, things thrive better in an open space than when overtopped by trees or hedges. If there are timber trees in the hedge, the landlord must be consulted on the propriety of taking them down, and a spirited, industrious cottager is often encouraged in most things tending to his welfare. It is, therefore, likely that the trees' condemnation will be sealed; but assuming that to be done, and the hedge cleared away, there must be some timber or other dead fence put up to protect the new live one for some years. Besides which it will not be prudent to plant Quicksets until the ground has had at least one year's fallow or rest from the crop it had had upon it for so many years before. This year's rest, however, will not be lost, as some crop of a useful kind—for instance, Potatoes—may be put upon it, and the young Quickset plants will make the more progress, in consequence of having fresh ground to grow in. I do not know anything more suitable for a hedge than Quicksets. Privet grows faster, but it is not such a protection against cattle; and Holly is too slow for the general mass of planters. If the garden is bounded by a lane, a suitable wooden railing must be put up to protect the young plants for four or five years, and on the field side some hurdles may do. But the locality and other circumstances will determine this.

At all events, the neatness of a cottage-garden fence generally proclaims that all is in good order within. In planting Quicksets, choose short stiff plants with good roots, and do not cut them down the first year; afterwards, however, they may be headed down to near the ground. A ditch on the lane side is sometimes necessary; but do not plant the Quicksets on a high bank. Nevertheless, let the earth be good to grow them in. Generally speaking, Quickset hedges grow best on dry stony ground; and if stones abound to a greater extent in the garden than is wanted there, a few mixed with the earth the Quickset is planted in will benefit it much. Plant the hedge in a straight line, if the nature of other fences will allow it; if not, make an agreeable curve. Keep the young plants clean, and do not cut any of them until the autumn when the shoots are ripened, when they may be cut pretty close down after the first summer's growth, and at the end of the second season a partial stopping will have to be done; but not until the plant has arrived at a size nearly becoming a fence, is it proper to cut anything away in summer. Deciduous trees of all kinds are impatient of being cut in the growing season. If the ground is at all inclined to be wet, let there either be an open ditch or a covered-in drain by the side of the hedgerow, and be careful to maintain the protecting-fence in good order until it can be dispensed with. In some cases a Damson tree or two might be planted in the hedgerow on the field side; but it is not prudent to plant anything so tempting by the side of a lane or public road. Judicious training, after the hedge is once up, will keep it in good order for many years, and a nice closely-trimmed hedge is a great ornament to a garden.

Dry, stony, or gravelly soils grow hedges best. On a piece of elevated ground near here (Linton)—not many years ago an

open waste—there are some fields enclosed with Quickset hedges, which have been the subject of a wager that a hare could not get through, so close and compactly are they grown. The custom here being to keep the hedge narrow, often not more than a foot for a fullgrown hedge, and being planted on the level ground, the weeds are also cleared away from the collar, and the ground slightly forked for a foot or more on each side every year. Better-managed hedges cannot well be found anywhere than on the district I speak of (Coxheath), the soil being very dry and stony.

The cottager ought to be encouraged in the rearing of a good hedge, as the general appearance of the place is much improved by a neat, trim fence. On stiff lands a few plants of Holly might be mixed with the Quicksets; and when a hedge is wanted very quickly, Privet might be planted mixed with the Quicksets. The latter, however, is not so certain a fence against cattle, and ought not to be on the side of the public road. Neither do I admire Beech, Hornbeam, or Willow, excepting the last-named may be planted in wet, swampy places, if there are any such; but it is to be hoped the cottage will be on dry sound ground. In trimming a hedge let the top, if possible, range with the natural level or inclination of the ground, and also with that of other fences adjoining it; and avoid those unevennesses so hurtful to the eye of the passer-by, when all other things, perhaps, tend to raise his admiration. Avoid Elder trees, Hazel or Ash in the hedge-row, as these are sad robbers of the soil, and destroy that food so much wanted for the Quickset. Let the hedge unite itself nicely with the gate, building, or other object; and keep all such weeds as the White Convolvulus, Couch Grass, and other enemies cleared away, and the result will be a nice-looking tidy fence.—J. ROBSON.

(To be continued.)

PRUNING STUNTED CAMELLIAS.

I HAVE two Camellias—one, the *Old Double White*, a fine bushy plant; the other, *Bealii*, is rather leggy and thin of shoots. I purposed as soon as the flowers are past to cut it greatly in, so as to induce it to grow bushy; but I am told that if I cut farther back than last summer's shoots it will not break for two years. Your advice at an early day will much oblige—AN AMATEUR.

[Camellias in good health may just be as freely pruned as Laurels. When they get in a stunted state, and the roots are not strong and vigorous, it requires some time to make nice bushy plants when placed under ordinary greenhouse treatment. There is no difficulty as to their breaking when cut back to the base of the wood of last year's growth. The delay takes place when pruning extends to wood of several years' standing. There are two modes, either of which you may follow with your leggy plant according to circumstances. 1st. Prune freely back as soon as the plant has finished flowering, if you have the convenience to place the plant in a moist atmosphere, and in a temperature ranging from 65° to 70°. During this period, as there will be little evaporation going on from young shoots and leaves, as these will be mostly removed, the roots will require but little water; but they should not be allowed to get dry. The stems should be frequently sponged, or moistened with the syringe; and if pretty well steamed with warmish vapour, the sooner will the latent buds break from all parts of the stem. 2nd. This will be greatly facilitated if the head, or docked-in branches, of the stem could be laid—not on, but just a little above, a bed of sweet fermenting dung or leaves. The roots should not be plunged, as they might be injured; but provided they have enough moisture, the plant will be quite as much at home when the head is in this reclining position as when set upright. The stem may also be frequently turned round and moistened; and the genial heat and steam from the fermenting material will cause the shoots to break so much more freely and quickly, that a season's blooming need not be lost. If such a plant is cut in in a common greenhouse, and no methods can be taken to insure a close moist atmosphere and a higher temperature, it is a great chance if the plant will make much growth the first season. Of course, no pruning should take place until the plant has finished flowering; and under general circumstances, unless for equalising strength, no stopping of young shoots should take place, as it is chiefly near the points of the shoots made next summer and ripened in autumn that we expect to get bloom in winter and spring. We once saw a number of Camellias getting their young shoots pinched in the middle of June to make them bushy; but we should not expect such plants to have many blooms the following winter and spring.]

VARIETIES.

AZOTISED BODIES are those substances which contain azote or nitrogen as one of their constituents, and which form part of the living structure of a plant or animal, or are produced during its natural decay. The principal members of the group are albumen, present in white of eggs, and the juices of plants and animals; globuline, or crystalline, a variety of albumen found in the lens of the eye; vitelline, another variety of albumen, composing the greater bulk of the yolk of the egg; paralbumen, a third variety of albumen found in the animal system during certain diseases; fibrine, which occurs largely in the seeds of cereals and in animal muscle; caseine (or cheese matter), present in all milk; legumine, a variety of caseine found in Peas, Beans, and leguminous seeds in general; gelatine, which is present in the skin, bones, and other parts of animals; chondrine, a variety of gelatine obtainable from the cornea of the eye and the permanent cartilages; isinglass, another variety of gelatine manufactured from the inner membrane of the floating bladder of sturgeons and other fishes; glue and size, which are secondary forms of gelatine; urea, uric acid, and hippuric acid, which are present in the urine of the higher animals; kreatine and kreatinine, occurring in the juice of flesh; several forms of urinary calculi, which are found as stones in the bladder; and the very large and important class of alkaloids, including strychnine, morphine, quinine, &c.—(*Chambers's Encyclopædia*.)

THE BOTANICAL GARDENS AT MELBOURNE.—Entering by the gate near the residence of Dr. Mueller (Curator of the Gardens), the first, and perhaps the most useful, feature presented is the section known as the Class Ground. It comprises representatives of plants indigenous to almost every portion of the globe, all of which have been very carefully grouped according to their affinity, or similarity of habits and appearance. Most of them have been planted nearly two years, but have only recently become sufficiently developed to render them practically useful to the labours of the student, to which purpose this section of the gardens is especially designed. The majority of these plants are now flowering for the first time; and the delicate beauty of their blossoms, combined with their extreme rarity, in this country at least, cannot fail to render them a very interesting feature to the general visitors to the gardens. Amongst them will be found a very rare plant, recently imported from California, denominated in the abstruse phraseology of the botanist, *Ceanothus thyrsiflorus*. Its blossom is of the most delicate blue, and beautifully formed. Its appearance is elegant in the extreme, and will make it an interesting and welcome addition to the choicest selections of exotics. There are two beautiful plants, natives of New South Wales, now for the first time in blossom, called respectively *Grevillea longifolia* and *Grevillea linearis*. A Chinese grass-cloth plant is not without interest; and a plantation of 300 Pine trees, although now only in its infancy, affords abundant promise of future grandeur. Passing to the hothouse adjacent to the class ground we notice numerous elegant varieties of the Cactus in bloom; an exceedingly delicate and very beautiful flower (blooming for the first time) called the *Spiræa barbata*; some pretty Begonias, with varieties from India and South America; and a *Kuhnia corifolia*,—a beautiful flower with an elegant white blossom, recently received from Wilson's Promontory. Adjacent to the aviary there is a Chinese plant, called the *Diervilla rosea*; its blossom is very delicate, with pink and white leaves. Also, a pretty flower, first discovered on the banks of the Murray, named *Loudonia Behrii*. Entering the Palm-house, we notice, on its western side, a group of native plants, very carefully arranged for inspection, with the view to afford visitors the completest possible idea of the Australian flora. The assortment comprises many only recently discovered, and now for the first time in bloom. There is a plant called the *Stylidium*, gifted with a very acute irritability, which Dr. Mueller demonstrated to us to an amusing degree. The plant has a "style," technically so called, which, on being touched, immediately flies up, much in the "style" of a "Jack in the box." It is a native of the Grampians. There is also a *Goodenia Macmillani*, recently discovered in Gipp's Land; another assortment of Begonias; a beautiful flower with a white blossom, called *Aphelandra*, a native of South America; some very prettily-constructed baskets, made with native fruit, and now doing duty as the caskets of an assortment of elegant Chinese plants; a fine specimen of the Tortoise plants; a magnificent Banana from India, and another from China; a Chinese Rice Paper plant, and a large variety of trees, plants, and

flowers, too numerous to particularise, but all exceedingly interesting and very beautiful. To the aviaries there have been some very recent additions of considerable interest. One of these, the lyre bird, is a valuable accession, as, independent of the beauty of its plumage, we believe it is the first of its species that has lived in captivity. Two native and one Californian quail, presented by Dr. Sewell, have just been added to the collection. The English and silver pheasants are much admired, and appear contented in their confinement. There are also in the gardens two white swans, received from England a fortnight since; and in the zoological department a pure bred alpaca, imported from Sydney during the present week. Throughout the gardens there are dispersed an excellent assortment of Roses which very much increase the prevailing beauty. An American Aloe is expected to bloom in the course of two or three weeks, and will become a decided attraction.—(*Melbourne Herald*.)

LAWSON'S GARDENERS' KALENDAR.

THIS handsome broad-sheet is, this season, illustrated with a view of a "domical conservatory," designed by Mr. Charles McIntosh, and printed in colours. The typographical matter is, as usual, beautifully got up, and consists of a great deal of information useful to gardeners. The "Notes on Guano" are very full, and will be found interesting to those who are consumers of that article as a manure.

TRADE CATALOGUES RECEIVED.

A General Catalogue of Nursery Stock grown for Sale, by James and John Fraser, Lea Bridge Road, Essex, N.E.—This is a most comprehensive catalogue of all sorts of nursery stock, extending to seventy-four pages of closely printed matter, and containing concise descriptions of the greater portion of the plants offered for sale.

A Priced Catalogue of New and Genuine Seeds for the year 1860. Sold by Milne & Co., Wandsworth Road, London.—This, also, is a very nice, concise catalogue, containing an abundance of useful notes on the various articles.

A Spring Catalogue of Seeds, &c., offered for Sale, by James Hunter & Co., 29, Clare Street, Bristol, embraces a well selected enumeration of the seeds of such crops as are usually cultivated in the garden and farm.

Seeds for the Kitchen Garden, the Flower Garden, and the Farm. Offered by Charles Turner, Royal Nurseries, Slough.—This is an excellent catalogue, abounding in many new things.

TO CORRESPONDENTS.

FLOWER GARDEN PLAN (C. G.).—Your flower garden plan is, without an exception, the very best planted of all the plans that ever were submitted to our judgment. It quickens our perceptions of the beautiful in this art, and will cause us to be careful lest we should make a slip when treating on the subject. Your Fuchsia is certain to be at the right pitch by the time you mention; but have it in the exhibition-pot by the last day in March, and if the roots are very much crowded by the middle of May give it very liberal waterings, a damp atmosphere, and not much sun until about ten days before the show.

VARIOUS (W. T.).—Burnt straw will be of little use in a Chrysanthemum compost. Never put the soil in loosely when potting. Night soil will not do for the compost. Your September-planted Rose-cuttings should not be removed until the end of the first growing season—about the end of next October.

MANY QUESTIONS (H. B.).—We must "cut" the answers according to the number, thus:—"How am I to cut (prune) my *Deutzia gracilis* for forcing?" Never cut it when you begin to force, but after it has done flowering. "Pots very full of October cuttings of Calceolarias, when shall I pot them out?" At once, if the pots are very full of roots; at the end of February, if not. "Shall I place them on heat for a time?" Yes, if you can spare room, but not strong heat, or over 60°, and only for two weeks. "A shady bank to a ditch I intend planting with Water Cress. I suppose I must not put in the cuttings till April?" Better if you never put them in, it will be dry in summer. A level bed on the north side of a wall is better than a running ditch, or rather better for the stomachs which cannot digest the eggs and spawn of all manner of water imps and kelpies, for growing clean, clear, wholesome Water Cress. "I am potting my summer cuttings of *Dielytra* in a compost-pit for florists' Pelargoniums. Is that right?" Just the very thing.

COVERING A WALL WITH IVY (J. F. C.).—Mr. Wells was in such a hurry that we could not catch the meaning of the construction of his transplanting machine; but for an Ivy-wall to be a model of perfection, every inch of it must be covered with Ivy, and not one leaf to shade another, or be farther from the wall than another, and be as free from dead leaves and litter as the lawn in front of the drawing-room windows. Also, birds are never allowed to make their nests in models of this kind. The first thing to do for covering an unsightly wall with Ivy quickly is a thorough good, rich, deep border, well drained. The better the border the faster the Ivy

will cover it. Any wall under ten feet high may be covered in one season and a half by planting Ivy of from seven to ten feet high out of pots, about two feet apart. We have done so nearly four years back, and by the middle of the second season every brick was covered; but for a higher wall we would use strong dwarf plants, and put them in about April, at one foot apart, and water them with liquid manure, in summer, for the first two or three years. No plant we know will better pay for heavy watering than Ivy, and with the garden-engine to dash the water up among the leaves. When once the wall is covered, the labour and care begin. The knife, the eye, the hand, and the brains must go in harmony to "keep" the Ivy short as the lawn. No shoot is allowed to get one inch from the wall; and, like seedlings, the shoots must be thinned where too close, and so must the leaves. Also, the very long and the very short-stalked ones, but no one out of a thousand takes such pride in Ivy as to make a model of it.

RIBBON-BORDER (D. G.).—Your border (thirty yards long by six yards wide) is eight feet too wide for its length to make a telling ribbon of it. Anything wider than five feet for a piece of ground of fifty feet in length, or over ten feet if the ground is 100 feet long, will not tell as a ribbon on a good eye. What we would do with it temporarily, would be to plant three rows of three kinds of Dahlias at the back,—one kind of Dahlia only in each row,—the "backmost" row would be the tallest, and the gayest scarlet and white fancy, striped, or topped kind. The next, a sulphury or canary-yellow kind. The third, the best rose kind, and in front of those three shades begin the ribbon in earnest by a row of *Zelinda* Dahlia. If you have old roots of such Dahlias, you are in time to get the four rows at the expense of 10d. for each row. The other rows may be of your own fancy, as a row of *Tom Thumb*, of *Calceolaria*, of *Flower of the Day*, or *Golden Chain*, or *Mangles*, or what you please, with blue *Lobelia speciosa*, and a front line of *Cerastium*. The cheapest selection we can think of.

RAINFALL (A Constant Reader).—For what district of England do you require the "sum total of the fall of rain in each year for the last twenty-five years?" At Chiswick we have the following returns:—

1835	23-17 inches	1848	28-34 inches
1836	28-73 "	1849	22-84 "
1837	19 88 "	1850	18-28 "
1838	21-57 "	1851	20-79 "
1839	28-30 "	1852	32-55 "
1840	18-87 "	1853	24-37 "
1841	30-97 "	1854	18-92 "
1842	22-27 "	1855	24-38 "
1843	25 48 "	1856	22-72 "
1844	21-34 "	1857	21-06 "
1845	23-33 "	1858	15-78 "
1846	27-71 "	1859	25-54 "
1847	16-67 "		

ERICA WILMORIANA CULTURE (An Amateur).—You are quite right in supposing that this requires similar treatment as respects pruning as *E. hyemalis*. Both of them bloom best on well-ripened shoots of the previous summer's growth. Your mode of pruning will therefore depend on the means at your disposal for securing nice, long, well-ripened shoots. Thus, if you must keep your plant mostly in the greenhouse, as soon as the plant has finished blooming cut in the young shoots a third of their length, and this will encourage the side-shoots to grow a little and some others to take the lead. Towards autumn give all the air and light possible to harden the wood and set the buds. If, however, you can command more heat than the greenhouse—say from 50° to 60°—prune fully half way down, let the plant stand for a few days to rest itself as it were, and gradually give it a higher temperature and a moister atmosphere, with plenty of light, so as to encourage sturdy growth. By-and-by turn the plant into a cold-pit, where, by regulating air, you can keep it rather close to encourage growth. Towards autumn give all the light possible, and plenty of air; but prevent a powerful sun beating on the sides of the pot. In either case, if the plant wants repotting, give it a larger pot after the new growth has proceeded two or three inches. Another mode by which to make a great bush in a short time. Remove all the dead flowers and merely the points of the long shoots; bend and tie them out so as to occupy all the space possible; treat the plant as above: and with good care a good-sized bush may be procured in one season, especially by giving a liberal shift. Our own experience, however, would lead us to conclude that such hastily-formed large specimens do not last long.

TREES OVERHANGING A NEIGHBOUR'S GROUND (A. Z.).—If he insists, they must be cut back until they do not overhang his ground. There is no other rule that we know of.

NUMEROUS (A Practical Gardener).—The dibble should be cased with iron; it is only calculated for using on fresh-dug light soil, such as Potatoes should be grown on. Of your dwarf Apple tree prune off about one-third of the length of each strong year-old shoot, and two-thirds of the length of each weak one annually. To prevent canker returning, we must first be told how it was occasioned. It is good practice to plaster over the wounds of old Apple trees with Forsyth's Compound.

MELONS AND CUCUMBERS (J. C.).—Of *Melons* the Trentham Scarlet, Beechwood, and Bromham Hall, will one and all suit you. It would be difficult to say which is "the earliest and best" *Cucumber*. We grow Cuthill's Black Spine and Victory of Bath.

LOBELIAS.—A Constant Reader wishes to know where seeds of the following can be purchased:—*Lobelia lutea* (yellow), *L. varifolia* (yellow), *L. ilicifolia* (pink), *L. corymbosa* (rose), *L. bicolor* (blue), *L. odorata* (white), and *L. minima* (white and rose).

ORCHID CULTURE (A Subscriber).—William's "On the Culture of Orchids," will suit you.

PLUNGING MATERIAL (W. X. W.).—We prefer sand. It does not harbour either insects or fungi. Forcing *Sea-kale* in the open ground does not injure the plants. Full directions will be given next week in answer to another correspondent.

NAMES OF APPLES (J. Close).—All we can make out of your Apples are—No. 1. *Tulip*. 3. *Adams' Pearmain*. 11. *Oxhead Pearmain*. 12. *Bredon Pippin*. If you will have the goodness to send them again next year we may be able to assist you further.

NAMES OF PLANTS (W. S.).—One is *Tritoma media*, but the other specimen is too small for us to discern the name.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JANUARY 31st and FEBRUARY 1st and 2nd. CHESTERFIELD AND SCARSDALE. *Hon. Secs.*, Mr. J. Charlesworth, and Mr. T. P. Wood, jun. Entries close January 11th.

FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). *Sec.*, Mr. W. Houghton. Entries close Jan. 14th.

FEBRUARY 29th, and MARCH 1st, 1860. ULVERSTONE. *Sec.*, Mr. T. Robson. Entries close February 11th.

JUNE 6th and 7th. BEVERLEY AND EAST RIDING OF YORKSHIRE. *Sec.*, Mr. Fras. Calvert, Surgeon, &c. Entries close May 31st.

JULY 18th and 19th. MERTHYR TYDVIL. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

N.B.—Secretaries will oblige us by sending early copies of their lists.

LIVERPOOL POULTRY SHOW, JANUARY 18—20.

THIS is unlike any other. It is a small, snug, limited Exhibition. All the pens shown are composed of birds which have either won before, or are, in the opinion of competent judges, good enough to do so now. It is a great treat to see all good ones; but there is almost a feeling of regret that perfect birds should, per force, be content with such mention as we can here give them. It is as though all the stars of the stage were congregated together for the performance of a fourth-rate piece in a barn, and Mrs. Siddons and John Kemble descended to bring in messages, and remove chairs and tables, in fulfilling the only vacant parts. Just as these parts would gain by being in such hands, so these good though undistinguished pens tend to make this Show superior to almost any other. There is not accommodation for a large number, nor is there the desire for them. The entrance money is, therefore, high, and this tends to make it a select and first-class Show.

All the gentlemen who undertake the office of Stewards are practical amateurs, and spare neither time, expense, nor trouble to insure the comfort of the birds and the satisfaction of exhibitors. The Meeting comes at the conclusion of the season; and after the grand effort, victorious and defeated may rest:—the former to take all pains to maintain their position; the latter to add where there is deficiency, to take the last opportunity of comparing with others, and to decide finally on steps to be taken to insure success next season.

The *Spanish* brought eleven pens, eight of which were perfect, although one was disfigured by trimming the hens. But for this, we have no doubt, they would have figured in the prize list. Miss Rake was first, followed by Messrs. Brundrit and Teebay. We have never seen a better class than this, and the condition of the birds contrasted most favourably with the same class last year.

There was a noble class of *Dorkings*, and Captain Hornby was first. He should not be beaten at home; but he was hard run by Messrs. Burn and Wakefield, who took second and third. The increase in the size and weight of the Silver Greys is very great, and at this Show there were some that would have stood well in open competition; but we are bound to note there were instances in this class where sufficient care was not taken in the selection of the hens, and in avoiding those spots on the plumage which cannot be considered part of the Silver Grey colour. Now, seeing this class is imperative in its requirements on that head, it follows any deviation must be fatal to success. The prize birds of Messrs. Dolby and Berwick, and the Hon. W. W. Vernon, were highly meritorious.

We have never seen better *Cochins*, either for size, shape, or colour. Mr. Tomlinson was first, Miss Musgrove second, and Mr. Stretch third. Mr. Copple for White; Messrs. Stretch, Felton, and Cattell for Grouse and Partridge. These names will be a guarantee for the truth of the remark with which we opened our notice of these birds.

Liverpool is a *Hamburgh* district, and we were prepared to find them numerous and good. We were not disappointed. We would especially notice the Golden-pencilled and Silver-spangled as being more numerous than we expected, judging from late Shows. We must refer to the prize-list for particulars; but it would be unfair not to mention Messrs. Archer, Munn, Worrall, Hyde, and Mrs. Pettat as having sent birds of unusual merit and beauty.

There are few Shows where *Game* are so popular as they are here, nor where the competition is so close. For the first time the class for Black-breasted Reds stood alone, and there was another for Brown Reds. The first added to the laurels of Mr. Moss, the second to those of the Hon. W. W. Vernon. Success

in such classes as these is an exploit, and we think the experiment of dividing them successful. The Duckwings, Black and White, were also good birds; but the entries were not numerous.

Game Bantams are becoming one of our most popular classes, and the entries are everywhere numerous. They were most beautiful; and we are glad to see they are becoming as true to feather as their larger brethren. If they continue to increase as they have done of late they will require to be classified. Messrs. W. Worrall, Moss, and Thornton were deservedly successful. The Gold and Silver and other varieties were all very good, but not numerous.

There was an excellent display of *Ducks*. The first-prize Rouens weighed 19 lbs.; while a pen was second that, after travelling from Scotland, weighed 21 lbs. They were not so perfect in feather as the first. Aylesburys, as usual, afforded a triumph to Mr. Fowler, whose birds weighed 24 lbs.; he was followed by Mrs. Seamans, 22½ lbs. There were beautiful Buenos Ayrean and Brown Call Ducks.

Mrs. Pettat was very successful in *Polands*.

There were two excellent classes of *Cochin Chickens*. Mr. Tomlinson was first in Buffs, with a young bird very like the famous old one. Miss Musgrove first, Mr. Cattle second for Grouse birds, after much competition.

Our limits compel us to refer our readers to the prize-list for the details of the *Single Cock* classes. As it was thought last year cockerels in the Game Sweepstakes showed at a disadvantage against adults, it was this year altered, and the consequence was fifty-two old birds were entered, and thirty-three young. These classes are now familiar to the *habitués* of Poultry Shows; but those who have not seen them at Liverpool have still something to see. The rows of bold birds, in perfect condition and feather, all level one with the other, and stepping proudly to the front of their pens to challenge the gaze of spectators, or the criticism of judges. Here, too, all colours meet—Black Reds, Brown Reds, Duckwings, and nondescripts; but Black and White seem to have no stomach for the fight, and Piles do not show.

The Judges were bound, in justice to the merits of many of these birds, to invent an intermediate state above a high commendation and below a prize. It was "Very Highly Commended."

Exactly half the birds entered among the adults figure in the prize list. Five took prizes, Mr. Moss first and fourth; Mr. Worrall second; and Captain Hornby third and fifth. Messrs. Hindson, E. Archer, Hon. W. W. Vernon, and E. C. Worrall, were very highly commended. All these birds were treading on the heels of the winners of the pieces of plate, and it was a long and difficult task to decide on their respective merits and claims. Half the cockerels also appear in the prize list. An old exhibitor took first prize. Mr. Wright, of Widnes, Messrs. Butler, Hindson, and Moss took the others. Messrs. Archer, Grimshaw and Wright were very highly commended.

Sixteen beautiful *Game Bantams* entered the list. Mr. W. Worrall was first; Mr. H. Worrall second; and Mr. H. D. Bayly third.

This concludes our notice of this excellent Show. We are bound, as usual, to speak of the liberality of all the arrangements connected with it, and of the care, impartiality, and painstaking which distinguish this Committee, and entitle them to the thanks of all poultry amateurs.

The Judges were—Rev. R. Pulleine, Kirby Wiske, Thirsk; and Mr. John Bailey, Mount Street, London.

SPANISH.—First, Miss M. L. Rake, Brandon Hill, Bristol. Second, W. W. Brundrit, Churchfield House, Runcorn. Third, R. Teebay, Fulwood, near Preston. Highly Commended, W. W. Brundrit; J. K. Fowler, Prebendal Farm, Aylesbury; J. Garlick, Hygeia Street, Everton, Liverpool; R. Teebay.

DORKINGS (Coloured).—First, Capt. W. W. Hornby, Knowsley, Prescott. Second, S. Burn, 1, East Terrace, Whitby, Yorkshire. Third, C. H. Wakefield, Malvern Wells. Highly Commended, H. W. B. Berwick, Helmsley, York; Rev. J. Hill, the Citadel, Hawkestone, Shrewsbury. Commended, Mrs. Pettat, Ashe Rectory, Basingstoke, Hampshire; Earl of Sefton, Croxteth Hall, near Liverpool.

DORKINGS (Silver Grey).—First, W. Dolby, Syston Hall, Grantham. Second, H. W. B. Berwick, Helmsley, York. Third, Hon. W. W. Vernon, Wolseley Hall, Rugeley. Highly Commended, G. Cargay, Sandon Farm, Stone, Staffordshire; Rev. J. Hill, the Citadel, Hawkestone, Shrewsbury; Capt. W. W. Hornby, Knowsley, Prescott. Commended, Rev. J. F. Newton, Kirby in Cleveland, Stokesley, Yorkshire.

COCHIN-CHINAS (Cinnamon and Buff).—First, H. Tomlinson, Balsall Heath Road, Birmingham. Second, Miss V. W. Musgrove, West Tower, Aughton, near Ormskirk. Third, Master T. H. Stretch, Marsh Lane, Bootle, Liverpool. Highly Commended, H. Tomlinson. Commended, Master E. C. Stretch, Marsh Lane, Bootle, Liverpool.

COCHIN-CHINAS (Grouse and Partridge).—First, Master E. C. Stretch, Marsh Lane, Bootle, Liverpool. Second, C. Felton, Erdington, near Birmingham. Third, J. Cattell, Worcester Street, Birmingham.

COCHIN-CHINAS (any other varieties).—First and Second, W. Copple, Prescott. Highly Commended, Mrs. S. R. Herbert, Powick, near Worcester.

HAMBURGS (Golden-pencilled).—First, J. Munn, Heath Hill, Stacksteads, near Manchester. Second, W. C. Worrall, Rice House, near Liverpool. Third, Messrs. Carter and Valiant, Poulton-le-Fylde. Commended, D. Harding, Middlewich; W. Pierce, Hartford, near Northwich.

HAMBURGS (Silver-pencilled).—First and Second, E. Archer, Malvern. Third, D. Harding, Middlewich.

HAMBURGS (Golden-spangled).—First, S. H. Hyde, Ashton-under-Lyne. Second, W. C. Worrall, Rice House, near Liverpool. Third, H. Carter, Upperthong near Holmfirth, Yorkshire.

HAMBURGS (Silver-spangled).—First, Mrs. Pettat, Ashe Rectory, near Basingstoke. Second, R. Teebay, Fulwood, near Preston. Third, J. Dixon Bradford. Highly Commended, J. Camm, Farnsfield, near Southwell. Commended, J. Robinson, Vale House, near Garstang; R. Teebay.

GAME (Black-breasted Reds).—First, G. W. Moss, the Beach, Aigburth, near Liverpool. Second, J. Hindson, Barton House, Everton. Third, W. Wright, West Bank, Widnes, near Warrington. Highly Commended, Messrs. W. and N. Grimshaw, Bank House, Pendle Forest, near Burnley; Hon. W. W. Vernon, Wolseley Hall; H. Worrall, Spring Grove, West Derby, Liverpool; G. W. Moss; C. Champion, Ryecroft Kennel, West Derby.

GAME (Brown Reds).—First, Hon. W. W. Vernon, Wolseley Hall, Rugeley. Second, W. Wright, West Bank, Widnes, near Warrington. Third, G. W. Moss, the Beach, Aigburth, near Liverpool. Highly Commended, J. M. Baker, Hallend, near Tamworth; W. Lomax, Stoneclough, near Manchester; G. W. Moss. Commended, G. Stone, Prospect Vale, Fairfield.

GAME (Duckwings and other Greys).—First, J. P. Smith, Lower Wick, Worcester. Second, W. Dawson, Selly Oak. Third, J. Hindson, Barton House, Everton.

GAME (any other varieties).—First, W. Dawson, Selly Oak. Second, J. Camm, Farnsfield, near Southwell. Third, G. W. Moss, the Beach, Aigburth.

BANTAMS (Game).—First and Cup, W. C. Worrall, Rice House, near Liverpool. Second, G. W. Moss, the Beach, Aigburth. Third, I. Thornton, High Street, Heckmondwike, near Leeds. Highly Commended, T. H. D. Bayley, Ickwell House, near Biggleswade, Bedfordshire; G. Finch, Worcester; Mrs. Pettat, Ashe Rectory, near Basingstoke; T. T. Parker, Adlington Hall, Chorley, Lancashire; H. Worrall, West Derby, Liverpool. Commended, J. Price, Bedale, Yorkshire; M. Turner, Preston.

BANTAMS (Gold and Silver-laced).—First, T. H. D. Bayley, Ickwell House. Second, Rev. J. Bowden, Thurgoland Parsonage, Sheffield. Highly Commended, T. W. Hill, Heywood, near Manchester.

BANTAMS (any other varieties).—First, W. C. Worrall, Rice House, near Liverpool. Second, J. Cattell, Worcester Street, Birmingham.

DUCKS (Rouen).—First, E. C. Worrall, Knotty Ash House, Liverpool. Second, J. Gibson, Woolmet, Dalkeith, N.B. Highly Commended, G. Daft, Halloughton, Southwell, Notts; J. K. Fowler, Prebendal Farm, Aylesbury.

DUCKS (Aylesbury).—First and Cup, J. K. Fowler, Prebendal Farm, Aylesbury. Second, Miss M. Seamons, Hartwell, Aylesbury.

DUCKS (any other distinct breed).—First, F. W. Earle, Edenhurst, Prescott (Buenos Ayres). Second, J. Dixon, Bradford (Grey Call Ducks). Highly Commended, J. K. Fowler, Prebendal Farm, Aylesbury (East Indian).

MALAYS.—Prize, A. G. Brooke, Cumberland Street, Woodbridge, Suffolk.

ANDALUSIANS.—Prize, Mrs. M. A. Blay, St. George's Square, Worcester.

DORKINGS (White).—Prize, J. Robinson, Vale House, near Garstang.

BRAHMA POOTRAS.—Prize, J. K. Fowler, Prebendal Farm, Aylesbury.

POLANDS (Golden-spangled).—Prize, Mrs. Pettat, Ashe Rectory, near Basingstoke. Highly Commended, Mrs. Pettat.

POLANDS (Silver-spangled).—Prize, Mrs. Pettat, Ashe Rectory, near Basingstoke. Highly Commended, Mrs. Pettat.

POLANDS (Black, with White Crests).—Prize, Lieut.-Col. T. Clowes, Froxmer Court, Worcester.

POLANDS (any other varieties).—Prize, G. Sweetman, 12, Copperas Hill, Liverpool.

HAMBURGS (Black).—Prize, J. Scott, the Brewery, Skipton-in-Craven, Yorkshire.

ANY OTHER DISTINCT BREEDS.—Prize, Miss Robinson, Mansfield, Woodhouse (Cuckoo Dorking).

COCHIN CHICKENS (Cinnamon and Buff).—First, H. Tomlinson, Balsall Heath Road, Birmingham. Second, W. Copple, Prescott. Highly Commended, Miss M. Stretch, Marsh Lane, Bootle, Liverpool; Miss V. W. Musgrove, West Tower, Aughton, near Ormskirk. Commended, Miss M. Stretch.

COCHIN CHICKENS (Brown and Partridge).—First, Miss V. W. Musgrove, West Tower, Aughton, near Ormskirk. Second, J. Cattell, Worcester Street, Birmingham. Highly Commended, Miss V. W. Musgrove. Commended, Miss M. Stretch, Marsh Lane, Bootle, Liverpool.

SINGLE COCKS.—*Spanish.*—First, W. W. Brundrit, Churchfield House, Runcorn. Second, T. Robinson, Ulverston. *Dorkings (Coloured).*—Prize, J. Robinson, Vale House, near Garstang. *Dorkings (Silver Grey).*—Prize withheld. *Cochin-Chinas (Cinnamon and Buff).*—Prize, W. Copple, Prescott. *Cochin-Chinas (Grouse and Partridge).*—Prize, Miss V. W. Musgrove, West Tower, Aughton, near Ormskirk. *Cochin-Chinas (White and Black).*—Prize, J. Fryer, 138, Westfield Street, St. Helen's. *Hamburghs (Golden-pencilled).*—Prize, Miss M. E. Gladstone, Court Hey, Liverpool. *Hamburghs (Silver-pencilled).*—Prize, D. Harding, Middlewich. *Hamburghs (Golden-spangled).*—Prize, S. H. Hyde, Ashton-under-Lyne. *Hamburghs (Silver-spangled).*—Prize, T. Dale, Middlewich. *Polands (Silver-spangled).*—Prize, Lieut.-Col. T. Clowes, Froxmer Court, Worcester. *Polands (Black with White Crests).*—Prize, Lieut.-Col. T. Clowes, Froxmer Court, Worcester. *Bantams (Game).*—First, W. C. Worrall, Rice House, near Liverpool. Second, H. Worrall, West Derby, near Liverpool. Third, T. H. D. Bayley, Ickwell House. Highly Com-

mended, J. Camm, Farnsfield, near Southwell; T. Howarth, Colemans, near Bolton-le-Moors, Lancashire; T. T. Parker, Adlington Hall, Chorley, Lancashire; H. Shield, Northampton.

SWEEPSTAKES.—*Game Cocks*.—First and Third, G. W. Moss, the Beach, Aigburth, near Liverpool. Second, H. Worrall, Spring Grove, West Derby, Liverpool. Fourth and Fifth, Capt. W. W. Hornby, Knowsley, Prescott. Very Highly Commended, J. Hindson, Barton House, Everton; E. Archer, Malvern; E. C. Worrall, Knotty Ash House, Liverpool; Hon. W. W. Vernon, Rugeley. Highly Commended, J. M. Baker, Hall End, near Tamworth; T. Burgess, jun., Burley Dam, Whitechurch, Salop; Hon. W. W. Vernon; J. Price, Bedale, Yorkshire; Rev. T. L. Fellowes, Beighton Rectory, Acle, Norfolk; H. Adams, Beverley, Yorkshire; Messrs. W. and N. Grimshawe, Bank House, Pendle Forest, near Burnley; R. Gorton, Tottington Hall, near Bury, Lancashire. Commended, E. Archer, Malvern; H. Shield, Northampton; J. P. Smith, Lower Wick, Worcester; J. Jennens, the Friary, Hamstead, Birmingham; H. Worrall, W. Wright, West Bank, Widnes Dock, near Warrington; E. Hanbury, Poles, Ware, Herts; Capt. W. W. Hornby.

GAME COCKERELS.—First, W. Wright, West Bank, Widnes, near Warrington. Second, J. S. Butler, Poulton-le-Fylde. Third, J. Hindson, Barton House. Fourth, G. W. Moss, the Beach, Aigburth. Very Highly Commended, E. Archer, Malvern; Messrs. W. and N. Grimshawe, Bank House, Pendle Forest, near Burnley; W. Wright. Highly Commended, E. Archer; J. Hindson; H. Shield, Northampton; J. Camm, Farnsfield, near Southwell; J. M. Baker, Hallend, near Tamworth; Capt. W. W. Hornby, Knowsley, Prescott; C. H. Wakefield, Malvern Wells; E. Worrall, Knotty Ash House, Liverpool; S. Matthew, Chilton Hall, Stowmarket, Suffolk; R. Woods, Osborton, Worksop, Notts.

MANUFACTURING ANDALUSIANS.

IN confirming the account given by "W. H.," *Exeter*, in your last part with respect to White and Black Spanish producing Blues, or Andalusians, I can affirm that in all the broods that I had at home or elsewhere, which were nine or ten hatches, there was no other colour but Blues. Mr. H. Hutson appears to have had a very different result in his breeding. Mine have all more or less of the white face, being bred from White-faced hens.

I am aware that the Minorcas should only have a white ear-lobe, and I feel convinced that they would breed Blues the same as the White-faced. I mean to try the experiment this season, and will give you the result at the proper time.

I feel obliged to "W. H." for his kind offer of satisfying me of the present mode of manufacturing Andalusians, as the last season was the first of my attempts on that particular cross.

In reply to Mr. H. Hutson's remark of White Spanish being better layers than the Black, I have to say that my Black hens, pullets of 1858, have been laying since the 10th of December last, and have continued to lay well ever since.—JOHN HARTLEY, *Great Crosby*.

DETECTING THE SEX IN EGGS.

SOME three years ago I selected thirteen eggs, having the air-circle on the side, and not on the crown of the egg, and reared twelve pullets from them. If there is nothing in the test I was, as it chanced, fortunate in the selection.—D. D.

BRADFORD POULTRY SHOW OF COCKS ONLY.

THIS, the second Show for Single Cocks of all breeds, was held on the ground adjoining the Prince of Wales Inn, Bowling Old Lane, Bradford, on the 7th inst. In consequence of the Preston Show being held two days previously, some of the Sweepstake classes did not fill so well, exhibitors not liking to exhibit their birds at two Shows in succession. Nevertheless, forty-four splendid *Game Cocks* were exhibited in the different classes; and, from the high opinion of the Judges of these classes, were second to none in quality. The first-prize *Red* belonging to Mr. Wilkinson, of Low Moor, being a most splendid bird; as well as the second-prize ditto of Mr. Dodds, of Ovenden. The *Duckwing* class brought its competitors, all of them being excellent birds. Mr. Whitaker's *Pile*, from Melton Mowbray (commended), was a beautiful bird. The entries for *Polands*, *Bantams*, and *Pencilled Hamburgs* were moderate. Several good birds found purchasers. The arrangements were all that could be desired. The Bradford rule of not allowing exhibitors to know the number of their pens before being judged was again adopted with success, and without the least confusion.

The Judges were Mr. James Dixon, of North Park, Mr. Ludlam, and Mr. Ward, of Bradford. Their awards, giving general satisfaction, were as follows:—

GAME COCK (any age or colour).—First, J. Wilkinson, Low Moor. Second, T. Dodds, Ovenden, Halifax. Third, J. Hodgson, Bowling. Commended, G. C. Whitwell, Kendal; H. Adams, Beverley; M. Julian, Market Place, Beverley.

GAME COCK (any colour but red).—First, Bird & Beldon, Bradford. Second, Noble & Ineson, Heckmondwike. Third, T. Ives, Guisley, Leeds. Commended, G. C. Whitwell, Kendal; M. Cooper, Helmsley Blackey Moor; T. Whitaker, Melton Mowbray, Leicestershire; John Hodgson, Bowling Lane.

SWEEPSTAKES.—*Game Cocks* (any age or colour).—First and Third, E. Dewhirst, Clara House, Horton. Second, S. Matthew, Chilton Hall, Suffolk. *Spanish Cock* (any age).—First, C. S. Nelson, Newhall Street, Birmingham. Second, S. H. Hyde, Moss Cottage, Ashton-under-line. *Cochin-China* (any age or colour).—First, W. Copple, Prescott, Lancashire. Second, R. Chase, Mosley Road, Birmingham. *Polands* (any age or colour).—First and Second, F. Hardy, Bradford. Commended, J. Bastow, Bowling. *Golden-spangled Hamburg* (any age).—First, S. H. Hyde, Ashton-under-line. Second, H. Adams, Beverley. *Golden-pencilled Hamburg* (any age).—First, H. Rushworth, Mirfield. Second, Bird & Beldon, Bradford. Commended, F. Hardy, Bradford. *Bantam* (Game, any age or colour).—First, I. Thornton, Heckmondwike. Second, S. Schofield, Heckmondwike. Commended, W. B. Tegetmeier, Muswell Hill, London. *Bantam* (Black or White, any age).—First, H. Firth, Bierley. Second, S. Schofield, Heckmondwike. Commended, Bird & Beldon, Bradford. *Single Cock* (any age or colour, any variety not before named).—First, W. Rodgers, Woodbridge, Suffolk. Second, F. Hardy, Bradford.

GUINEA FOWLS.

ALLOW me to suggest to Poultry-show Committees the propriety of making a class for Guinea Fowls. Those useful and handsome birds are almost ignored at Poultry Shows. At the last Crystal Palace Exhibition there was a class for them, but "no entry;" and not to be wondered at when the prize was only 10s. They always look well at a Show, and would, doubtless, be exhibited in sufficient numbers if an adequate prize were offered for them. Be so good as to give my favourites a word of commendation.—J. B.

[So few are exhibited that the Guinea Fowl is *always* an absolute loss to a Poultry Committee. They are beautiful birds—hardy, prolific, and excellent for table purposes. They deserve to be more generally kept, and if properly managed may be rendered as domestic as other fowls.—Eds. C. G.]

CHARACTERISTICS OF BEARD AND BALD-HEAD PIGEONS.

HAVING been a Pigeon-fancier for the last twenty-five years, and being particularly fond of Baldheads and Beards, I hope this may stand as my excuse for troubling you now. In your number of January 10th Mr. Brent gives his opinion of the markings of a Beard: in the markings of the beard and head I agree with him; but as to the thighs, Mr. Brent is certainly wrong. Clean thighs are the property of a Baldhead, not of a Beard; the rump, vent, and thighs of a Beard should be coloured as the Beard is—blue, black, red, or yellow; *nealy* by fanciers is not counted a colour. If you want proof, ask any Beard-breeder. I presume Mr. Brent has never bred a Beard. Go to any Show, and look at the colour of the thighs of the prize birds, and if that do not convince you, you must be heretics indeed!

Lastly, no mention is made of the property of the eye; and if our good friends in Tasmania breed Long-faced Beards (which I hope they do not), they might be breeding them with the orange or gravel eye, instead of the white or pearl eye.—J. OVENS, *Villa Street, Walworth*.

OUR LETTER BOX.

MAKING FOWLS LAY (P. H. T.).—Youthfulness in the hen is the best aid to a winter supply of eggs. Old hens seldom or never lay at that season. Pullets of the *Cochin-China* and *Spanish* varieties are the best producers of eggs in winter. They need nothing but the ordinary diet. In very cold weather a little hemp-seed once or twice a-week stimulates them.

BLACK POLAND COCKEREL (M. A. B.).—We do not know of one "black throughout." You had better advertise for one.

GAME FOWLS FOR SHOW (R. H.).—We believe that in judging *Game fowls* the colour of the legs does not enter into consideration; but if there is a choice it is always in favour of willow legs. If we were asked to name the most popular breeds we should say *Black Reds*, *Brown Reds*, and *Duckwings*. There is no colour which is a type of purity or otherwise. Every shade has its admirers. One swears by white, one by willow, another by yellow, the last of all by blue. We can only add as we began, the most popular colour is willow. If the tinge of yellow is merely what is called straw-white, it is not fatal, nor is it a great disadvantage; but if there is a flagrant contrast, it makes the bird a *Pile*.

EGGS AND POULTRY FOR MARKET (Recent Subscriber).—We will enter fully into the queries you propose next week.

GAME COCK DISEASED (I. M. K.).—His case is hopeless. A *post mortem* examination will show that either his lungs or his intestines are extensively ulcerated.

PAYNR'S HIVES (A Subscriber).—Apply to Messrs. Neighbour & Son, Holborn, London.

WEEKLY CALENDAR.

Day of Month	Day of Week	JANUARY 31—FEBRUARY 6, 1860.	WEATHER NEAR LONDON IN 1859.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
31	Tu	<i>Cerastium pumilant.</i>	29.584—29.515	43—31	S.W.	.02	43 af 7	44 af 4	22 1	9	13 41	31
1	W	<i>Fragaria sterilis.</i>	29.867—29.712	46—34	N.W.	.02	42 7	46 4	38 m 2	9	13 49	32
2	Th	PURIFICATION. CANDEMAS DAY.	29.539—29.416	45—30	W.	—	41 7	48 4	56 3	10	13 57	33
3	F	<i>Ranunculus ficaria.</i>	30.150—29.932	39—24	N.	—	39 7	49 4	4 5	11	14 4	34
4	S	<i>Lamium amplexicaule.</i>	30.089—29.685	48—34	S.W.	.15	37 7	51 4	0 6	12	14 10	35
5	SUN	SEPTUAGESIMA SUNDAY.	29.544—29.391	52—36	S.W.	.22	36 7	53 4	40 6	13	14 16	36
6	M	<i>Taxus baccata.</i>	29.273—29.239	45—27	S.W.	.02	34 7	55 4	11 7	14	14 20	37

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 44° and 31.5° respectively. The greatest heat, 57°, occurred on the 3rd, in 1850; and the lowest cold, 10°, on the 5th, in 1830. During the period 131 days were fine, and on 100 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

PROCEED with the potting of the young plants in the greenhouse, and the small specimens of all kinds, using the soil tolerably rough, with a liberal sprinkling of sand, and good drainage. To be kept rather close until they make fresh roots.

AZALEAS (Indian).—Introduce a few into heat; to be fresh potted before starting them, giving a rather liberal shift into good peat and sand, with thorough drainage. A moist-growing temperature between 60° and 70° to be maintained, with plenty of air in favourable weather. Sow seed, as likewise *Rhododendron*, in a gentle bottom heat.

KALOSANTHES.—To be started into growth, potting them in a compost of half turfy loam, one-fourth turfy peat, and one-fourth decomposed leaf mould, with plenty of coarse gritty sand, and an admixture of charcoal and pebbles or potsherds broken small. A liberal shift to be given, and to be kept in a temperature of from 45° to 50°.

NEW HOLLAND PLANTS.—Select young plants of the *Boronias* and other such families, and give them a liberal shift; they delight in good fibrous heath soil, with a good portion of sharp sand, and plenty of drainage. It is advisable to pick off the flowers, and to pinch off the tops of the young shoots during their growth, to form handsome specimens.

ORANGE TREES.—Be vigilant that scale and all insects are removed from them and from *Neriums*, and other such plants before they begin to grow, as young wood and foliage are more difficult to clean without injury.

STOVE AND ORCHID-HOUSE.

Stove plants in general will now require an increase in the amount of atmospheric moisture, and a slight advance in heat; such an advance to be made, more especially on bright afternoons, when solar heat can be enclosed in good time, and with it a moist and congenial atmosphere.

CRINUMS.—Pot them if they require it, but without disturbing the ball of earth about their roots; to be favoured with an increase of heat to start them afresh, and during their active growth to be liberally supplied with water.

GLORIOSA SUPERBA.—Shake out the roots, and repot in good fibrous loam, with a sprinkling of sand, and place them in bottom heat. No water to be applied to the tubers until they have commenced their growth.

FORCING-PIT.

Continue to introduce for succession bulbs, Lilacs, Roses, Sweet Brier, and the many other plants previously recommended as suitable and useful for that purpose. A temperature of from 65° to 70° to be maintained, with plenty of moisture in clear weather.

FORCING-HOUSES.

FIGS.—Trees in pots to have their shoots stopped
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when they have made three or four joints, and to be supplied occasionally with liquid manure.

MELONS.—The fruiting-beds to be prepared and in readiness for the reception of the young plants as soon as they have nearly filled their pots with roots.

PEACHES.—If a house were started, as advised at the beginning of the year, a second should now be set to work. Syringe the trees several times a-day in clear weather, and once or twice in all weathers until the flowers begin to expand. Attention to be given to the early house, when the fruit is set, to thin it partially, but to leave one-third more on the trees than will be required to ripen off. If Peaches are intended to be grown in pots for next season, the maiden plants should now be procured, and potted in nine or ten-inch pots. The *Royal George* Peach and *Violette Hâtive* Nectarine are the most eligible for that purpose.

PINES.—If any indications of the presence of worms appear on the surface of the pots a watering with clear lime water will remove them. The same steady temperature to be kept up in the fruiting-house or pit as lately advised. Although it is sometimes recommended we would not advise to withhold water at the roots for the purpose of starting them into fruit; for if, by proper management, they are good, healthy plants, they will have formed their fructiferous parts before this time, and therefore should not be allowed to get dry, but be watered when they require it with tepid water.

VINES.—The successional houses to be treated nearly in all respects the same as the early houses; the temperature may now be increased in accordance with the increase of light rather more rapidly at an early stage of their growth than that of the house in which forcing was commenced in December. When Vines for the early crops are grown in pots, put the eyes in 60-sized pots, and plunge them in a dung-frame or pit, with a bottom heat between 70° and 80°. The *Hamburgs*, *Black Prince*, *Muscadine*, and *Sweetwater* are the kinds to be preferred for that purpose.

WILLIAM KEANE.

WARNINGS.

EVERY flower garden, for the planting of which a plan has not been prepared, or decided upon, before the first day or the first week in February of each year, runs the risk of being chance-planted for that season; and afterwards the chances will be converted into memorandum-charts, as surely as it is of the first importance that no good flower garden should ever be planted without a previous memorandum of all the beds, and of all the plants and kinds of colours which were intended for each bed.

The reason for making the beginning of February the half-way house of planting is this: It is the latest period to which it is safe to defer the arrangement of the flower garden for that year; and bad luck in the winter-keeping of the young stock of bedding plants is generally pretty well known or easily guessed at by that time. Three very different kinds of agents, therefore, are very likely

to put up at the half-way house every time the journey is made, or as often as the sun comes round to that point at which the Lord Mayor of London could read his own writing by the light of the glooming at half-past five o'clock in the evening; and when the Lord Provost of Inverness could do the like on Clach na Cuden, just one half-hour later on the same day with more ease to himself.

The first of the three to arrive in my time was the agent of the procrastinationists, and he was generally the best loaded for the journey; all his people forgot to make the necessary memoranda last autumn, or delayed to make their hay while the sun shined, or till the unaccountable early and severe frost killed their plants, or the best of them, ere they had given a thought on the morrow.

The second agent used to be in such a feverish hurry, as if he could swallow his supper before he had rung the bell to order it. His people were of the true blue, the clear scarlet, and the bright yellow colours which never yet failed; but that early frost drove them to the exchange at last in the person of the fidgetty little agent aforesaid, who is authorised to make the earliest possible arrangements for planting with the least possible outlay of time and money.

And the third and last on the list of annual customers at that half-way house was the agent for the honeymooners and moonshiners, or of those who married since the last fall, and such as are willing to try the luck of genteel gardening for the first time, and without knowing one plant from another.

Of all the fellow travellers I ever yet fell in with, this third agent to that half-way house was the most luxuriantly agreeable. There was no moony or spoony agency about him: he would "call," or ring, for everything of the best, pay the best, tell the best tales, crack the best jokes, poke the best fun; and with it all, he was as kind-hearted as a minister of the kirk, and his creed would reach to the back row of a ribbon-border; although, like those who sent him, he hardly knows one flower from another.

But what about the habits of the first agent? Why, they are described already in a Scottish novel called "Mrs. Glashen," or some such name. That Mrs. might be, or have been, the wife of that very agent; and if so, you will never hear of them wanting to break the holy banns asunder, for they agree on every point and subject, and that amounts to the pleasure of being "time enough yet," for every mortal thing under the sun. Time enough yet to get the one load of dung from the livery stables to make the first seed and cutting-bed with. Time enough yet to order seeds, roots, plants, bulbs, and bedding stuff. Time enough yet to make out the plan for planting one's flower-beds. Time enough to consider the best, the cheapest, or the most expeditious method of striking cuttings. But, bless you, there is no earthly reason for expedition yet. He is going to order a Waltonian Case. He sent for one last year, but Mr. West sent word back that the propagation season was then over. Of course, that cannot happen again: still there need be no hurry about it, or dropping this conversation between him and Mr. Moony, as we used to call our facetious friend, who was keeping up this artillery on purpose to tease the little man of fidgets, who seemed as if made of facts and figures from the cradle; and who, also, strangely enough regarded the exchange, the mart of facts and figures, as entirely out of his element. He never went there except on rare occasions like this, which was entirely owing to that sudden and severe frost in October. His people were always in time and in tune, they went by the seasons more than others; the most conventional of their customs was to put up the first propagating-bed, or apply the bottom-heat pipes to cuttings for the first time just when Parliament first met after the new year. Everything was of their own rearing, and everything they reared was the best of its kind, and the best was made of it at the best time. February was, therefore, out of their

element; they went to shop in May and June, and again in October, after seeing the season out; and it was only that frost which thus broke on their fixed rules and habits, and it might never happen again. But, instead of being "time enough," he learns, to his turn of the fidgets, that it is one month behind already—that neither love nor money can now procure an old-established plant of any small kind of Lobelia, or of Anagallis, or hardly of a Cherry-pie, and half a score of other things he had lost in October, or in consequence of its severity; and little morsels of tiny cuttings just rooted, and feeling their way to the sides of thumb-pots, were out of the question in such places as he represented, where all such things are needed by the hundreds and thousands. The only consolation under the circumstances was, that they sent him instead of their orders to the distant mart, and thus saved the heartburnings of all his constituents—saved them from the awful reality of an early spring consignment for the flower garden, in which tens and twelves of newly-struck things would be stuck into the barrel of a quill pen, for safe transport like the "eggs of caterpillars," as Peggy would say.

The above is the first practical point at which the doings at the half-way house, or the necessities of the early part of February, in such a year as this, will be of most value to our own people. If they will only bear in mind that plants were killed by that frost as well and as completely in the neighbourhood of Dublin and Edinburgh as in the vicinity of London, and that the same effects were produced by the same cause round every city and town in the three kingdoms, they or our own country readers may rest assured that nursery stock was not exempt from the visitation in any part of the kingdom; and that, in consequence, the said nurseries can ill afford to send out large plants for bedding in early spring at the reduced prices at which they are generally sold later in the season. It even ought to be understood in the country at all times that the trade could never, and seldom ever did, afford to sell old bedding-plants in February strong enough to get a dozen or a score of cuttings from the moment they were unpacked. I say, for avoiding the heartburn, from which I have suffered for many years, that a better understanding ought to exist between the trade and the customers. In a few weeks we shall hear of bedding plants as low as one penny each. But is it not the smallest figure for the tiniest morsel of cutting just then rooted or about to root? People who go seldom to market, like our fidgetty little friend, expect when you speak of a fowl you mean the old hen—the mother of the chicks or chickens—instead of the smallest of that brood. They wonder at the low figure you ask: it must be a great bargain, it must indeed; and they must order a sample, and that sample is after the bandy-legged things spoken of by Mr. Errington, with this difference—that half the legs are broken in the carriage, and the other half no legs to stand on, till after another month's nursing at home in some warm and sheltered quarters. The end of it is a burning in the region of the windpipe, which no wind can assuage—that season at least, for there is no chance of their meeting and having it cooled down with a blowing up, and be done with it.

The same with packets of seeds. What is a packet of seeds? Any mortal thing dead, dying, or in life, which a man or woman chooses to put in and call so. But what is more strange still, every packet of seeds, and of the very same kind of seeds which have been sold in England since the time of the passing of the Emancipation Bill in 1829 were sold at the same relative price, and yet one was sold at 6d., and another of the same kind at 2s. 6d. the same year, if you can understand that. But the difference was in the different quantities which each packet contained; and, oftener than not, the half-a-crown packet was the cheaper of the two. That was the reason why I asked Mr. Marcham to state the number of the seeds he put into the different priced packets of his

Tritoma seeds; and unless the weight or the number of seeds in each packet is mentioned, I should choose the highest priced in preference for my own use with the greatest confidence of the best bargain.

My packet of seeds of *Tritoma* was sown on the last day of the old year,—the dearest time in winter,—and the first of the seedlings could just be seen on the morning of the 24th of January, the day on which Parliament met. The pots were all the time in a common greenhouse temperature; but they would vegetate faster as the season advanced, or at that period if a pot of them stood in the kitchen window—one of the best places on earth to get up seeds very early in the season. I wanted, however, to see the exact time they took in the dead of winter under the most common and most ordinary treatment; and I think I may safely say that five weeks would be required to get up December-sown seeds of *Tritoma*, four weeks for January, three weeks in February, and two weeks or less in March, according to the state of the weather.

But this meeting of Parliament has deranged the plans of one of those at that meeting at the half-way house. He and his people used to have the dung ready to make up the first cutting-bed on the 3rd or 4th of February—the more usual time for Parliament to meet. The sooner the better this season, however, as there are so many more who must go early to market to make up in time for the losses by the early frost.

Now is the right time also to make up the yearly stock of *Diadematus*, *Quercifoliums*, *Uniques* and *Almas*, together with *Golden Chains* and all the dwarf variegated and plain-leaved *minimum* Geraniums. The former, because of their habit of lankiness, if they are propagated in summer from the flowering wood: and the latter, from their dwarf habits allowing them to be stored in winter in the same space that would be required, even if they were cut in for cuttings in the autumn—that is, they carry their cuttings on their heads all the winter without occupying more room than they would need if you or I undertook to carry their cuttings through the winter instead—a matter which is of little consequence to big folks, but which is of the utmost advantage to us and to those in the same condition of life, without meaning worldly conditions, but the extent and condition of our share of the world in gardening. It is but too often the case with such as “we,” that, with all our wits about us, we can never keep autumn-struck cuttings of these dear little *minimums*, plain and variegated as they are, alive through a dreary dead winter for want of better conveniences; so we lift the plants and pot them whole in the autumn, barring thinning off most of their big leaves. By so doing they root and establish themselves in the pots in one-half the time it would take those which were stumped to get cuttings from in autumn; and there is no fear or bother with the plants all the winter. The cuttings are still on them safe as walking on dry land; and in February we cut many more cuttings from them than would be lawful in the autumn, for we stump them down in February as the florists do the *Pelargoniums* in July. The young, the youth, and the manhood cuttings of all *minimums* will root in February as freely as *Verbenas*—that is, the shoots of last year, if they are long enough; or, with them, the bottoms of the two-year-old shoots. When the growth of two or more years is not long enough to make a respectable cutting we go the whole length, and take the cutting with the bottom part as bare and as old as it may be, with equal certainty of rooting just as well as the youngest of them, only that they take ten days longer to succeed in the effort.

I have added another to this class of *minimums*, which will require exactly the same care and treatment as the *Golden Chain*: I named it the *Silver Chain* in my study-book. Since then, however, another beautiful small grower has been published under that name, and my name had to be cancelled; but you will soon hear of it as

Beaton's Variegated Nosegay. The flower is Cherry-coloured, and the habit is the right model for an edging-plant.
D. BEATON.

PLANTING AND TRANSPLANTING TREES AND SHRUBS.

THERE have been in all ages of the world's history but few men of great intelligence who have not turned their attention to the art of planting, and who have left to their survivors monuments in the shape of trees which have long chronicled their memories.

The art of transplanting has for ages past received little attention, having been performed in the rudest way, by cutting off the roots to a certain radius, and by the agency of mechanical power removing a large ball of earth entire, which has been dropped into a hole of very little larger size, and the head of the tree and side-branches much reduced at the same time.

“A work of difficulty and danger tried,
Nor oft successful found.”

It is not to be wondered at, then, that trees so treated do not for many years assume a picturesque and expressive form, but remain markedly distinguishable for their crippled appearance. But, notwithstanding this drawback upon its ultimate success, such was the practice both with the Greeks and Romans, in France during the reign of Louis XIV., in the northern parts of Europe, and in our own country till the time of Evelyn, and somewhat later.

It is now about 190 years since the removal of large trees was first introduced into this country. Lord Fitzhardinge, a contemporary of the celebrated Evelyn, being the first person who ventured to improve upon the then existing practice, by cutting round the roots two or three years before removal.

Evelyn, who as an ancient authority was one of the best informed men of his day, gives in his “*Sylva*” the following directions for transplanting an Elm tree:—

“Of all the trees which grow in our woods, there is none which doth better suffer the transplantations than the Elm; for you may remove a tree of twenty years' growth with undoubted success. It is an experiment I have made with a tree almost as big as my waste; but you must totally disbranch him, leaving only the summit entire; and being careful to take him up with as much earth as you can, refresh him with abundance of water. This is an excellent and expeditious way for great persons to plant the accesses of their houses with, for being disposed at 16 or 18 foot interval, they will in a few years bear goodly branches, and thrive to admiration.”

Thus we find the art of transplanting in his day to be as perfectly empirical as it had been in the time of the Greeks and Romans; and so it continued, with the exception of Lord Fitzhardinge's preparation of the roots a year or two beforehand, till the time of Sir Henry Stuart, whose publication of the “*Planter's Guide*” laid the foundation of a new era in the art. The beautiful scenes created at once at Allington by the powers of his skill and genius do him great credit as a landscape artist and a sound practical man, and his idea of preserving the whole beauty and contour of trees without mutilation is good and realisable.

I have planted many trees upon his plan, and in no case have I lost one, but all have been attended with the happiest results; and although many of the trees were forty feet in height, they have never been in the least wind-waived, although they had no other security than his “retaining bason.” I have planted trees thus treated by the side of others which had been done on the mutilating plan twenty-five years ago; and while they appear only like mutilated stumps, the Stuartian trees are fully vigorous and picturesque.

Having thus glanced at the origin and progress of the art of transplanting, I will now discuss the subject, and will first consider the expediency of choosing a proper season for doing it.

There is no doubt in my mind as to being able to transplant successfully both trees and shrubs at any time of the year—that is, if we take every pains and do not grudge bestowing a little extraordinary labour upon them; but it is an *indispensable* provision that their roots must be previously cut round and prepared. Dull damp weather must be selected for the operation; shading must be resorted to on bright days; and the syringe or garden-engine be constantly used to refresh and invigorate the plant or plants, while copious supplies of water must be given to the roots.

I do not think it is worth while to incur all this trouble unless in cases of great urgency; and for general planting there is no period of time so suitable as the early autumnal months, beginning with the middle of August, which is the best time of all, and continuing through September. At that period the nights are damp and dewy, and the perspiration of plants is less active than in drier seasons. Added to this, the earth has accumulated its maximum of bottom heat—a most essential point for stimulating the young roots to action, as upon this action thus induced must depend the fate of the trees in the drying month of March. This is a rule applying with equal force to a tree or shrub about to be removed.

It is a lamentable fact, that in places which have been thickly planted so few specimens fit for removal can be found, having been drawn up and spoiled by standing too thickly; and I would caution the reader against the use of such plants, as they are not possessed of what Sir Henry Stuart calls “protecting properties.”

It is extraordinary how much success in transplanting depends on the proper selection of a subject for our operations. If it is removed from the interior of a plantation, where it has been nursed and sheltered, it can scarcely be expected to thrive in a bleak and windy situation. The adaptability of plants in this respect is singular enough. There is on the exposed side of every tree a greater density of branches than exists elsewhere; and if such a tree is transplanted into a thickly sheltered place, these appearances will gradually disappear, the bark will become polished and smooth, and the branches lax and diffuse.

We believe that the planting of young trees is, generally speaking, very imperfectly done, and one of the greatest faults consists in inserting them too deeply into the ground. The roots, too, are frequently crowded together in a heap instead of being carefully laid out in their natural directions. These points deserve the attention of planters. The planting of young trees is very simple if done methodically.

There is a great fund of interest and amusement in transplanting large trees and shrubs, so as to give a finished effect to what were bare grounds. Such was the noble effort of Prince Maurice, who was Governor of Brazil in 1696. He built a magnificent palace, laid out splendid gardens, and in order to give the immediate effect of wood, removed “700 Cocoa trees of various sizes,” of which some rose to thirty, some to forty, and some to fifty feet in height, to the lowermost branches.

HENRY BAILEY, *Nuneham*.

THUNBERGIA HARRISII AND HOVEA CELSII CULTURE.

“I HAVE a plant of the *Thunbergia Harrisii*, which grew and flowered a little last summer in a nine-inch pot. I gave it a shift into an eleven-inch pot, with some broken bones and charcoal for crocks; the soil, a mixture of loam and peat. It grew fast, and produced fine leaves (eight inches by three), and many flower-spikes. In November the leaves began to shrivel a little, and the flowers did not open, so I gave it a shift into a thirteen-inch pot; but I was very disappointed that not above three of the blooms opened, and the leaves continue to shrivel. It has been kept in a heat of from 50° to 70°. I have given it water regularly.

“I have also a plant of the *Hovea Celsii*, which produced a quantity of flower-buds, which did not open in the middle of last summer as I expected. It has been kept in the conservatory and rather shaded. The buds are still on, and it looks healthy.”—A SUBSCRIBER.

I think that at least you have made two mistakes with this plant: first, using bones at all freely for drainage, and shifting your plant in November. The whole tribe will grow luxuriantly if they have anything at all rich to feed upon; but then the leaves will feel the slightest check, and this extra luxuriance will be produced at the expense of free flowering. When the plants are too gross in habit, there will be a tendency from extra strength to throw off the flower-buds. If the plant were kept any long time in such a low temperature as 50°, and when arrived at the flowering state, the symptoms spoken of would readily occur, especially if not carefully watered. I can form little idea of what “regularly watered” means, except it is that the plant had as much and no more than it required under the circumstances. For instance: if the plant were dryish—not too dry for a temperature of 50° or 55° in a dull day—and the sun, coming sud-

denly and unclouded, raised the temperature to 70° or more, then the leaves would perspire more than the roots could readily supply them with nourishment, and the leaves would flag or wither. On the other hand, if the temperature were long at 50°, and the roots were very wet, and the weather were dull, the whole plant would become in a sort of dropsical state, glutted with juices which it could not get rid of. These evils would be aggravated by your shifting your plant in a flowering state in the month of November. The most active roots of the plant were next the sides of the pot. In potting from the nine-inch to the thirteen-inch pot you gave them a check, and surrounded them with fresh-growing material, which, under favourable circumstances, would encourage fresh luxuriance rather than blooming. All plants in pots should have the pots filled with roots before the time of blooming arrives. Many plants fail to bloom altogether, or drop their blooms, if fresh shifted after the bloom-buds appear. This plant would require a medium temperature of 60° to open its blooms kindly, and I would under the circumstances have preferred the nine-inch to the thirteen-inch pot. I once saw a plant showing such signs as yours, but that was from want of watering carefully. The soil in the ball had been allowed to get very dry, and a good proportion of that being loam, it had been drawn from the sides of the pot, and, consequently, future waterings had escaped by that medium, leaving the centre of the ball unwetted. The plant not thriving as was expected, was shifted into a larger pot, and this just presented raw, fresh soil for the water to escape by. At length the plant was taken out of the pot, and the old ball thoroughly examined, and the cause at once discovered; and after standing an hour in water heated to 75°, the plant was repotted and did well.

Had I your plant in summer, in a nine-inch pot, I should have preferred top dressing it, and giving a little manure watering in preference to shifting it once or twice more that season. When young and until it came to be placed in a six or seven-inch pot, I should have given it a compost of peat, loam, and rich leaf mould and a moist heat to encourage growth; but when I gave it its last shift into a flowering-pot of from nine to twelve inches, instead of anything rich I should have given equal parts of rough loam and heath mould, and as much of them, both of rough lime rubbish and some bits of charcoal, using all rough, and only having from a quarter to half an inch of rather fine material on the surface, to prevent the air entering too freely. I once grew a large collection of these plants, and I attributed the successful and dense flowering of them to a free use of lime rubbish in the compost, which prevented the blooms being hidden and covered with Cabbage-like leaves. The leaves, also, being less luxuriant and more firm and compact, were less injured by sudden changes of heat and cold, wet and dryness. Almost the whole family require a free use of the syringe to keep down red spider. Sometimes the tender shoots are assailed by green fly, but not often. If, notwithstanding the temperature indicated, your plant still keeps unhealthy, I should recommend taking it out of the thirteen-inch pot, shaking a good part of the old soil away, as well as all the new, and repotting again in an eight or nine-inch pot, and give, if possible, a little bottom heat at first. This would be rather against any flower-buds opening, but would be good for the plant next season. If not done now, I should certainly do so next spring, and give the last shift early in the summer.

HOVEA CELSII.

I do not so easily see through the cause of failure with this beautiful *Hovea*, if failure there has been. It generally blooms most freely in spring and summer; but, if permitted, it is almost a constant bloomer. Sometimes we have seen many buds on the young shoots of plants, which were rather thick in clusters, and remained a considerable time in that position before they were sufficiently advanced to expand fully. This was more particularly the case when the plant was growing freely. I almost judge, therefore, that your buds will open all right enough yet. If the buds had dropped, and the plant had looked unhealthy, I should have come to the conclusion that the drainage was defective; or that the centre of the ball had got too dry from a system of watering at the surface, and not giving as much at each watering as would be sufficient to moisten the ball.

I am not aware that much has been said of this plant of late, and do not recollect that a full detailed account of culture has appeared at all in *THE COTTAGE GARDENER*, though the main points have been several times alluded to; and therefore it may suit you, as well as others, to give an outline of culture.

In choosing a plant to begin with, select one young and

healthy, and with several shoots instead of one, as it is naturally inclined to get tall and leggy instead of branching in the bush form. I will suppose the plant is in a 60-sized pot, and obtained in March or April. If there were flower-buds on the young shoots I should be inclined to sacrifice them the first season. I should therefore take a little off the point of the shoots, rub off the flower-buds, tie the shoots down with a hasp to another string round the rim of the pot, and keep the plant in a closeish moist atmosphere—say from 50° to 55° and 60°, until the wood-buds on the shortened shoots had broken and grown an inch or half an inch in length. Then I should repot the plant and keep it in a growing state as before, giving more air and full exposure to the sun as the shoots lengthened.

In repotting three things must be considered in the case of a beginner: 1st, to give a small shift; 2nd, to secure thorough drainage and prevent all access of worms; and 3rd, to use a soil which will not easily become sodden and sour, nor yet be too easily and quickly dried. First, then, I would recommend for the first shift a 48-sized pot, because in such a small pot the plant is not so likely to be overwatered. In the second season I might use a 32, or even larger, because then more experience will be gained: that size might be used at once if there were a thorough understanding how watering should be done. Were a large shift given at once, and the whole of that inappropriate soil to be watered thoroughly, the little ball in the centre would be pitched in the middle of a morass, and disease or death would be sure to follow. When large shifts are given to such rather-particular plants, success will almost entirely depend on watering the soil just as far as the roots extend, and keeping up a free growth by a little extra temperature. Fine plants are thus most quickly formed; but they do not keep in health so long as those which are kept growing by smaller shifts. The smaller-shift mode renders it more difficult even for the most inexperienced greatly to hurt or destroy the plant.

I need not premise that the pot should be thoroughly clean, and if new all the better; but if new let it be soaked in water for ten minutes, and then use it when it gets dry: this will insure the pot being in a kind condition for nursing the pet plant. When new pots fresh from the kiln are used the pots absorb more than their due share of moisture, and a vacuum is thus often left between their sides and the soil, through which your waterings too easily pass without thoroughly moistening the ball.

The *drainage* is the next thing to be considered. A small cap of zinc placed over the hole would be the best security against the smallest worm wriggling itself in, if ever you should take the plant off a wooden shelf. Failing that, place a nice piece of broken pot with its convex side over the hole, so as to fill the space neatly. Water will get through, though little else could get in. Place a few pieces of crock, or anything else most handy, over and round this first piece, or cap, as hollow as possible; then nearly half an inch of smaller pieces, followed by at least half an inch of smaller pieces still, either of broken pots about the size of Peas, from which the dust has been excluded; broken charcoal, sifted in the same way, small gravel washed and dried before being used, or a mixture of all three. A little moss placed over this, or a layer of the roughest of the compost, makes the pot ready for receiving the ball. The moss is the best, because it not only helps to equalise moisture, but prevents the earth getting among so as to clog the drainage. When no moss is used, I like greater depth of drainage. The compost should be two-thirds of rich heath mould, and a good part of that should be in pieces, in size from a small to a large Pea; the other third may be of silver sand, broken crocks, charcoal, and freestone in similar-sized pieces, but from which the dust has been excluded.

In potting care should be taken that the plant had been thoroughly watered, and allowed time to drain itself. In turning the plant out remove the large portion of the drainage, but leave the finer, if the roots are working in it; gently disentangle the fibres at the outside of the ball, and place the ball at such a depth that the collar of the plant shall be about half an inch below the rim of the pot. That collar should not be covered with fresh soil more than the slightest portions of fine materials to give all a fresh appearance; and the moving or picking a little of the old soil from the surface of the ball will allow this fresh covering without burying the roots or collar deeper than it was before. The compost, neither wet nor dry, should be packed as firmly round the ball as will not injure the roots, and the surface should be finished with finer material (what is left will be finer) to prevent air getting to the roots too easily.

A little nice, sweet, dried leaf mould, so as to be sure there is

no likelihood of worms being in it, will help the plant in this young state; and when larger shiftings are given, this and a little sweet fibry loam may be added with advantage until it amounts to about one-quarter of the compost. When larger shifts are given, the pieces of the compost may be proportionately larger.

In watering, the water should always be a few degrees higher than the temperature of the house. Care should be taken that the whole ball is moistened, without allowing the water, especially in winter, to play against the collar of the plant. The safest plan is to pour the water on a crock, or on an oyster-shell, so that the surface of the pot is soiled over with water without bringing it with force against the collar of the plant. After shifting, less water will be needed until the roots are working freely in the fresh soil. A little shading in bright weather, and a syringe overhead to lessen perspiration, will often be better than heavy drenchings at the roots. The soil, however, must not be allowed to get unhealthily dry.

Pruning, Temperature, and Position.—These may be varied according to circumstances. If we bear in mind that the blooms are produced most freely in clusters near the axils of the leaves this season on wood made and ripened last season, we have presented to us the whole theory of management. It is not often safe with this plant to prune back further than near the base of last season's shoots. If the plant is kept all the year round in an airy greenhouse or conservatory, the pruning must not be excessive; but a number of short shoots must be preferred to fewer and longer shoots. The best plant that ever I saw had been managed very much like a Willow-stool; only in pruning, instead of cutting close to the stump, or rootstock, a bud or two had been left at the base of each shoot. Such a plant, however, could not have been grown in an airy greenhouse. Most likely, shortly after being pruned back it was put into a closeish, moist atmosphere, and a temperature ranging from 50° to 65°. By June or July the pot would most likely be put on a slate in a cold pit, or better still on two bricks, to let the air circulate beneath the pots. By keeping the pit somewhat moist by syringing the walls, and giving no great amount of air, and shading in the middle of the day, the shoots would grow rapidly; and if a little air were left on all night, they would not be drawn. At the end of August or September, and the first week or fortnight of October, the plant should be gradually used to more air and sunshine, until it can bear the latter even without glass, so as to harden the young shoots. The pit would protect the pot from the sun's rays; if not, a piece of cloth or mat should be placed on the side next the sun. The plant should be in its winter quarters by the middle of October, and an airy, light place should be given to it all the winter, and the average temperature ranging from 40° to 48°. If in bloom, a few degrees more will be advisable. It is better for the plants when not encouraged to bloom in winter. If similar conditions can be secured in the growing time, I should prefer a span-roofed house to a pit, though the latter will answer well. An attempt at similar conditions, by keeping the plant along with others requiring similar treatment, even in a greenhouse, will be gratefully received. But if this plant is kept in the greenhouse, the aim should be to grow a number of short, stubby shoots every summer instead of fewer and longer ones, as the short ones will be more easily matured. At no time should I leave it out of doors without means of protecting the pot from the sun, and from heavy, pelting rains. A plant turned out against a wall will have better chance to thrive than a plant standing out in a pot exposed to take its chance of the variable weather of our summers.

Propagation.—This is most easily done by *seeds*. Moisten them in water for six hours at a temperature of 120°. Sow in sandy peat in a hotbed, and prick off three or four of the seedlings round the sides of a four-inch pot, when two or three inches high, and harden off by degrees. Nip the points out when three or four inches in height. *Cuttings* of the points of the shoots may be struck in sand over sandy peat, and covered with a bell-glass. But the best cuttings are obtained after the plant has received less or more pruning, by slipping off a few, or thinning the new side-shoots when between two and three inches long, taking them off close to the older stem, inserting in sand as above, covering with a hand-glass, and keeping a little cool until the base of the cuttings begin to swell, when a little bottom heat will cause them to root more quickly. When that is done the plants should be gradually hardened.

Insects.—The most troublesome is a white scale. I once cleared a plant much infested by laying a cloth over the pot, and dipping the whole plant in a vessel of thin clay paint. The plant

was allowed to lie in a shady place for thirty-six hours. By that time the clay was drying and blistering off. The process was helped by drawing the shoots gently through the fingers, and then syringing and washing until all was clean. Glue water just as strong as, when at a temperature of 60°, to feel slightly sticky when the thumb and finger were placed together, put all over the plant with a soft brush, the plant kept in the shade, and the application repeated the next day, and the following all well washed with clean water at about 75°, had the same effect of destroying all the insects, large and small, and doing little or no injury to the plant. In neither case would I allow the washing to get into the soil the plant was growing in. R. FISH.

SEVERITY OF THE WEATHER IN SUFFOLK.

I HAVE been expecting to see more accounts of the late severe frost than the one which Mr. Errington has kindly favoured us with.

Mr. Errington and his neighbours in Cheshire, must have suffered to a great extent, owing to the absence of snow. Here (Thornham), twelve inches of snow fell on December 14th.

December 15th, the thermometer registered 12° of frost.

"	16th,	"	"	26°	"
"	17th,	"	"	29°	"
"	18th,	"	"	14°	"
"	19th,	"	"	30°	"
"	20th,	"	"	23°	"

Thus it appears that the frost was more intense here than in Cheshire; and yet (thanks to that best of all protectors, snow), we have not suffered so much as our Cheshire friends; but the following trees and shrubs are much injured on the south side of each, owing to the snow being melted by the sun:—Evergreen Oaks, Sweet Bays, *Leycesteria formosa* and Laurustinus, all much injured. *Pinus insignis*, Rhododendrons, Cedrus Deodara, Cedar of Lebanon, Portugal Laurels, Common Laurels, Thujas, and Common Yews, all damaged on one side. Broccoli and such things being close to the ground, have escaped tolerably well.—JOHN PERKINS, *Thornham Hall*.

[What gardeners term "degrees of frost," are so many degrees below the freezing-point; that is, below 32°, the freezing-point of water.—EDS. C. G.]

DEFORMED CUCUMBERS.

I HAVE a Cucumber-pit thirty feet long heated by hot water with a hot-water tank under the beds; and in order to allow the escape of steam, and so have a moist atmosphere in the house, my gardener has inserted two-inch drain-pipes into the tank in several places. The heat in the house seems to be all that can be desired. It is easily regulated, and kept in an even temperature. The plants show plenty of fruit, which at first looks well; but the fruit soon begins to swell at the points, and seems hide-bound in the centre, so that as it grows it assumes the form of a shoe's sole, and is, of course, valueless. Will you tell me what is the cause of this, and how it may be remedied?

My gardener says it is owing to the want of sun heat this season that the seed-vessels form at the points, and continue growing while the rest of the fruit is stationary. I fancy there must be something wrong at the roots, or in the management.—AN OLD SUBSCRIBER IN KENT.

[We think that both you and the gardener are right. It is easy giving heat under such circumstances; but the more heat you give the less able are the leaves, in the dull weather we have had, to elaborate sap sufficiently. This is one cause of the Cucumbers not swelling equally. This does not take place so readily in a span-roofed house as in a pit, because there is light on all sides. If there is nothing to prevent the roots getting to, or very near to, the tank-heating medium, the scalding of the young roots will prevent the due swelling of the fruit. A third cause of the phenomenon described is using too long kinds for winter use. A short, hardy kind—as *Sion House* or *Kenyon Improved*—is the best for winter. A fourth cause at this season is fertilising the fruit in the usual way, and succeeding in doing it as you seem to have done; for, if we mistake not, every one of these knobs is full of seeds. What there is of the Cucumber, if any size, is not useless, though mis-shapen. We would leave the consideration of these things to you, and chiefly to the gardener, as it would seem his practice is all right. We

have only two remedial suggestions to offer in addition; and, as we have found them effectual under such circumstances, we should like to know the results with you, if you give them a fair trial. The first is, as the fruit shows so plentifully, thin them out freely, so as to allow a few only to remain in each light. As soon as the flower at the end of the young fruit shows any length, and before it has a chance to open, tie a string round it to keep it close, so as to prevent ants, flies, bees, or men fertilising it from the pollen of the male flowers. This will prevent your getting seeds from such fruits; but, most likely, they will swell equally all their length. In such dull weather moderate the temperature. See several ideas on that subject published in not very-far-back numbers.]

OBJECTIONS TO CLOSE-GLAZING.

I VENTURE to write again on close-glazing; but, first, I have another charge to bring against the open laps for the cold ends and back of plant-houses. In the glass-house I mentioned there are Camellias all round as near to the glass as possible without touching it. They bloom from November to May; the white ones always in December and January, and if there come a sharp frost and strong wind together, the cold air is driven through the laps, and before it can get warmed reaches those blooms that are near the glass, and turns the edges of the petals of a dingy yellow colour. I am aware that it might be prevented by frigi domo or calico tacked on the inside; but I object to these, because they darken a house at the time when plants, growing and blooming, require all the light possible. I believe the best remedy would be close-glazing those walls of the house which are exposed to the coldest winds. The south or front wall and the roof I would by no means have close-glazed.

As projecting horizontal bars would be very objectionable in plant-houses, on account of the water, dirt, and insects that would lodge on them, I will attempt to describe a plan which is easy to adopt, would be quite efficient, and very cheap. To the woodwork I would add horizontal bars of good red deal cut three quarters of an inch square, which when planed would be little more than half an inch. They need not be rabbeted, but merely planed and let into the upright bars, and might be fastened with a sprig at every joint to admit them. The upright bars might be cut to about one-sixteenth of an inch from the inner edge of the rabbet. That space, the sixteenth of an inch, would be filled up with putty, and the inside of the glass would rest exactly on a level with the inside of the horizontal bars: thus they would form an even surface from top to bottom, down which the water would drain, and might be conducted into a small spout of zinc let into the wood immediately below the glass. It might be made to drain into a vessel, and be kept full also, if necessary. A joiner who has built greenhouses, &c., assures me that the extra expense of the horizontal bars such as I have described, placed eighteen inches apart, would be less than 1d. per foot.—T. OXLEY, *Spondon*.

DOWNWARD CIRCULATION OF HOT WATER.

BY R. BUIST, ROSEDALE NURSERIES, PHILADELPHIA.

It has always been doubtful whether hot water in heating greenhouse structures would descend just at the boiler and allow a walk to pass over it, and then rise again and flow freely. We undertook this disposal of the flow-pipe with a new boiler just put up here. Whilst doing it, several practical men from the other side, as well as others in this country, all prophesied it would be a failure; even some of them affirming that it had always been a failure, even when tried at the boiler, but not so, if it occurred at the extreme end. I did however get one, and only one, to encourage a hope of success; that hope, however, was so faint that we left all the implements to cut out the dip next day, fully expecting a failure after such a "balance of power" against us. In twenty minutes after the fire was applied to the boiler, I found circulation commencing, and in less than an hour all was acting like a charm. The top of the boiler is two feet above the walk, the flow-pipe dips and allows the walk to pass over it, rises two feet and a half, and goes on as freely as the flow that has no dip.—(*American Gardeners' Monthly*.)

[There is no difficulty in this instance, for the boiler-top was above the level of the walk. If it had been as is usual, below that level, the hot water would not have circulated.—EDS. C. G.]

THE WINES OF WOODSTOCK.

(Continued from page 231.)

I COME now to introduce you to some samples which, reckoned at 1s. 6d. per bottle, would cover their prime cost to their home consumer.

1857.

On October the 29th I gathered my *Esperione* and *White Sweetwater* Grapes, in the proportion of two-thirds of the former to one of the latter, mixed them together, and, when crushed, added 1 gallon of water, from "Fair Rosamond's Well," in Blenheim Park, and made 7 gallons of wine. To sample No. 1 I allowed 3 lbs. of sugar per gallon; to No. 2, 2 lbs.; and to No. 3, 1 lb. of sugar. Nos. 2 and 3 were worked in stone vessels, and bottled off in the following spring. From the small proportions of sugar given to them, I feel curious to know what is thought of their merits; and I mention here, once for all, that I never add one drop of raw spirits to my wines of any description; all the alcohol they gain is through the properties of the sugar, which is always necessary for British wines, more or less, on account of the lesser portion of sunshine heat the Grapes get, compared to their foreign compeers; and even there, in some parts, they use a great deal of sugar to their Grape juice. No. 1 sample was worked in a small barrel.—[No. 1. Very sweet. Nos. 2 and 3. Dry. No. 3 we thought as good as most clarets. —Eds. C. G.]

In October, 1858, I drew off a small quantity, it proved to be very bright. This was my first run, and to be "in at the death" could tolerably explain my satisfaction; but, I intended it to remain in the wood another year, and on October the 3rd of last year it was bottled, and the wine had become slightly clouded. From which I infer, that it should have been bottled off a year sooner, or, otherwise, left in the cask for a longer time; and even then, if preferred to be drunk as a still wine, a tap could be driven in the barrel, and the wine drawn off for use as required.

1858.

On October the 21st I gathered 85 lbs. weight of *Esperiones*, and 36 lbs. of *Sweetwaters*. The former (No. 4), ran 5½ gals. of pure juice, to which I applied 4 lbs. of loaf sugar per gallon. The saccharometer floated at twenty-one in the pure juice, and after the sugar was given at fifty-two. I wanted to allow but 3 lbs. of sugar a-gallon to this wine, but was urged to the larger quantity by the rector and the parish clerk, who is the son of an alderman! What was I to do? I think to this day that the wine is made unnecessarily sweet. On the 27th the saccharometer, which is marked on the index to fifty only, floated above that count by ten, by guess. March 15th, 1859, racked the wine, saccharometer thirty. October 3rd, bottled, saccharometer twenty-six.

The white Grapes (No. 5), ran 2 gallons of pure juice, allowed 3 lbs. of sugar per gallon. Saccharometer, pure juice, twenty-five; after sugar, forty-two. On the 27th it told forty-nine, and when the wine was bottled in October, 1859, it floated at seven. On the same day I proved the saccharometer in some sherry, and it sank to less than water mark.

For the petit vin (No. 6), on the 25th, I put 2 gallons of water to soak the skins and pips; 28th, strained it off and gave 3 lbs. of brown sugar per gallon. Saccharometer, before sugar, two and a half; after, thirty-three; and on the 30th, it floated at thirty-nine. Bottled this "cheap wine" in the following spring.—[No. 4. Sweet. No. 5. Sweetish. No. 6. Effervescent. Good, but a Cape-like flavour.—Eds. C. G.]

1859.

On October the 21st I gathered 128 lbs. weight of *Esperiones*, and 73 lbs. of *Sweetwater* Grapes. The former (No. 7), gave me 8 gallons of pure juice, allowed 3½ lbs. of sugar per gallon. Saccharometer, pure juice, twenty; after sugar, fifty-two. On the 31st, it rose up to fifty-nine.

The white Grape (No. 8), ran 4 gallons of pure juice, allowed it 3½ lbs. of sugar per gallon. Saccharometer, in pure juice, twenty-two; after sugar, fifty-three. On the 31st, saccharometer sixty—viz., as previously remarked, the indices over fifty are my own imagination.—[Nos. 7 and 8. Both effervescent. The best of all the samples.—Eds. C. G.]

I also made, this year, 6 gallons of what they would call in the cider counties, "washings."

Now, look on that picture and then on this, drawn from the "Cincinnati Scientific Artisan," and taken from the *Times* of October 27th, 1858:—"What American wines are made of.

Hiram Cox, M.D., of Cincinnati, has made the following startling statements. 'During the summer of 1856 I analysed a lot of liquors for some conscientious gentleman of our city, who would not permit me to take samples to my office, but insisted on my bringing my chemicals and apparatus to their store that they might see the operation. I accordingly repaired to their store, and analysed samples of sixteen different lots. Among them were—port wine, sherry wine, and a Madeira wine. The distilled liquors were some pure, and some vile pernicious imitations; but the wines had not one drop of the juice of the Grape.' Italic is my own. 'The basis of the port wine was diluted sulphuric acid, coloured with cider-berry juice, with alum, sugar, and neutral spirits. The base of the sherry wine was a sort of pale malt, sulphuric acid from the Bitter Almond oil, with a per centage of alcoholic spirits from brandy. The basis of the Madeira was a decoction of Hops with sulphuric acid, honey, spirit from Jamaica rum, &c. The same week, after analysing the above and exhibiting the quality and character of the liquor to the proprietor, a sexton of one of our churches informed me that he had purchased a gallon of the above port wine to be used in the church on the next Sabbath for sacramental purposes, and that for this mixture of sulphuric acid, alum, and Elder-berry juice, he paid 2 dols. 75 cents. a gallon.'

So return we to our home-made; and let me speak of Rhubarb, which may be truthfully termed the poor man's wine, for there never can be any difficulty where a corner of almost any description of soil is to be had in raising this production. From the middle of June to the beginning of July is the proper time, for then the stalks are neither too old nor too young; and the method of making it into wine, with a few exceptions which I will point out, is the same as that just specified for the Grape. Calculating that 9 gallons are to be manufactured, a 9-gallon cask and a gallon stone bottle will be wanted. 60 lbs. of unpeeled stalks must be procured and well bruised with the pestle and mortar, or with the mallet on the washing-bench over a tub, and in progress cast into it, along with 6 gallons of water, in which the bruised stalks are to soak from 16 to 24 hours. Then strain off, first taking the precaution to cut a mark on the tub which is intended to be used to where it will hold 10 gallons; add the sugar, and 4 ozs. of red argol procured from the chemists, for this is a keeping property wanting in all wines excepting the Grape; then pour in sufficient water to fill the tub up to the ten-gallon mark, and in every other particular proceed after the manner already explained. Though in the instance of Rhubarb, omit the young wine.

1857.

The Rhubarb wine (sample No. 9) I made in the middle of June. I gave it 2½ lbs. of loaf sugar to the gallon. No. 10 is some of the same wine with ½ lb. extra sugar to the gallon, and I applied it when I racked the liquor in the following October, as it was not thought sweet enough. At the same time I bethought me of a colouring matter to improve its hue, which is naturally pale. I procured 1 oz. of cochineal, secured it in a small muslin bag, and placed it in a stewpan on a warm hob along with two or three quarts of the wine, and let it stand twelve hours or so to extract the colour from the drug; but not by any means allowed it to boil, or to become scalding hot even. It was run off and replenished with other quantities on to the same bag, twice over, and the colouring successively entered at the bung-hole of the cask, when a healthy sherry tint became imparted to the wine.—[No. 9. Disagreeable. No. 10. Sparkling and good.—Eds. C. G.]

1858.

No. 11 I made on the 8th of July; 4 lbs. of loaf sugar were allowed per gallon, and the saccharometer floated to forty-five; on July 12th to forty-three; 19th to thirty-six; and on the 21st to thirty-five; when I ran off the wine from the cask, and sulphured it to stay fermentation, as follows:—After the barrel was rinsed out from the settlings, and placed bung-hole downwards, I took an old iron spoon holding some flowers of sulphur a-light and allowed the fumes to enter the cask, which was then filled again with the liquor, and on the 30th day of the month the saccharometer floated to twenty-nine. The fermentation proved very slight after the sulphuring; but I shall not care about repeating the operation till further comparison enables me to prove its benefit. I used 2 ozs. of cochineal to colour this wine, but I fancy the drug prevents the effervescing qualification.

No. 12 is some of the same wine which I retained uncoloured; and for lack of the sparkling quality in the others, I set my wits

to work and managed to produce in it that lively action so much appreciated in the summer time, by introducing a pint of the *Esperione* to a gallon of uncoloured Rhubarb wine. I became aware of the fact from the bottles having begun to form a rifle corps in the cellar. In short, I had produced a pink champagne, and the specimen sent had its cork replaced and wired down in the latter part of last July. A white champagne, by adding the juice of the white Grape in lieu of the red, could be made. Real pain by taking too much of it.—[Nos. 11 and 12. Both good.—Eds. C. G.]

1859.

I have made 10 gallons of Rhubarb this year, and added along with it in the barrel *Esperione* wine in rather more than the above proportions. I await the result, and will let you know all about it.

Apropos, as the subject of Grape culture in the open air is now decidedly swaying the mind of the horticultural world, and as wine-making follows as a natural consequence, I send you some interesting passages, in part bearing on our subject, from the letters of Orazio Busino, chaplain to the Venetian Embassy at the Court of King James I., extracted from No. 204, Art. IV., of the "Quarterly Review," where it says, "On the whole he appears to think more meanly of our gardens than we should have expected. The vegetables, especially the Cabbages grown in the neighbourhood of London, he extols in most glowing language; but he speaks of the common fruit in terms which are hardly consistent with the accounts of it which are left by various writers of the day. He says they are seldom served at dessert, but that the whole population are munching them in the streets, and at places of public amusement all the day long. But in this case we beg to urge that the good health of the metropolis is a proof that the fruit could not be so bad as it appeared to our southern connoisseur. It was a frequent amusement, he tells us, and so we believe it was till comparatively recent times, to go to the orchards and eat it on the spot, and this was often done in a sort of competition of gourmandise between the city belles and their admirers; one young woman, he avers, beating her opponent by two pounds and a half. We hear, without regret, that her victory cost this heroine a severe illness. But for the credit of our countrywomen, we would rather hope that the rector of Piazzola was hoaxed, and the whole story a fable. Busino, at Burleigh, was taken by Lord Exeter into his vineyard, and there, on tasting the Grapes, and comparing their state of forwardness with the time of year, he expressed his fear that they 'would never come to anything.' Nevertheless, his noble entertainer told him that it was the family opinion they would make excellent wine. Possibly artificial means were then used to correct the excessive acidity, or it may have been relished from habit, just as the labourers in many districts enjoy the sour cider which cannot be tolerated by an unpractised palate and stomach. When the commerce and agriculture of the country improved, it was probably found that the ground could be more profitably employed for other purposes."

Yes, the ground, possibly, but how many thousand acres of ugly superficial bare walls could *now* be made to become useful and ornamental, to bear excellent wine-making Grapes? Think of this loss to Britannia on account of so much unproductive surface! If I can produce in a cold, uncongenial station, from 520 square feet of house frontage, enough Grapes to make thirteen gallons of pure wine, given the congenial house frontage of half England only for an answer. It is a sum truly worth working out—in casks. I would recommend the sewage committee to establish, as soon as may be, walled vineyards along the route of their mains on every practicable spot. The speculation would be sure to pay them well, and what an acquisition and grateful return for the expenditure of their money the wines would prove to the Londoners as a summer beverage; particularly to the female part of the population, who are now made to come but badly off in the way of drinks. Ginger beer and lemonade are not very nourishing, and after these, Paterfamilias—let alone the spinsters—with middling means, how few there are, comparatively, that can introduce foreign wines to their families? Spirits and bemuddling stout and porter cannot be tolerated by far the greater part of the ladies of our land; and I have known those who visit here always prefer my Grape wines to sherry or port at table; though to rich people the home growths may scarcely appear worth a consideration, upon the principle that no wines can be good which are not foreign, and do not cost a great deal of money. But how many there are who are not overburdened with the material

called riches, yet have an inherent satisfaction in knowing and partaking of what their own country is made capable of producing. I myself am one of the latter class; and I intend to follow up this manufacture of Grape wines, as being both needful and convenient; and, lastly, though not least, in serving to contribute to the comforts of those about me.—UPWARDS AND ONWARDS.

NEW OR RARE CHOICE HARDY SHRUBS.

MANY of the readers of *THE COTTAGE GARDENER* have not the opportunity of seeing the expensive botanical periodicals: hence they do not know what new plants are introduced, and their qualities for ornamenting their gardens. To supply that knowledge I have already given lists of new and rare stove plants; but as every one has not a stove or a greenhouse, the following list of lately-introduced, worthy, hardy shrubs will, no doubt, be useful to a large class of our readers. A garden must be small indeed where there is not room for a new hardy shrub or two. I may remark, also, for their guidance that the following shrubs may be obtained at any of the London, and also at many of the large provincial nurseries.

ÆSCULUS INDICA (Indian Chestnut).—This almost approaches to the rank of a tree. The leaves are broad and lance-shaped. Flower in terminal spikes, and of a white colour; two side-petals pink at the base; the two upper marked with yellow and crimson. Perfectly hardy.

AMYGDALUS PERSICA FLORE PLENO (Double-flowering Peach).—There are three new varieties of double-flowering Peaches that are all very beautiful. They are named Camellia-flowered, Carnation-flowered, and Rose-flowered—all very double and richly coloured. As yet they are expensive, but will soon be cheap, as they are easily propagated by budding. Being hardy, they may be planted in the open border or against a wall. I imagine, however, their great use will be as forcing plants for early flowers.

ATCUBA HIMALAICA (Himalayan Aucuba).—Leaves lance-shaped, shining deep green, with the toothed parts tipped with white. Flowers inconspicuous, purplish-green, succeeded by long orange-coloured berries. A hardy handsome shrub.

BERBERIS HOOKERI (Hooker's Barberry).—Branches slender; leaves oblong lance-shaped, spiny-toothed like the Holly; flowers abundantly in pendulous umbels, and of a pale-yellow colour and large size.

BERBERIS JAMESONII (Jameson's Barberry).—Branches lengthened; leaves oval, undulated, spiny; flowers numerous, produced on terminal pendulous panicles, yellow colour and very large for the genus.

The Barberries are now a large class of handsome-foliaged shrubs, and they have the advantage of growing well under trees, as well as in open places. They thrive best in a deep sandy loam. The above two are acquisitions to our shrubberies.

CEANOTHUS VEITCHIANUS (Mr. Veitch's Ceanothus).—Flowers deep mazarine-blue, produced in heads thickly massed at the ends of the shoots; leaves smooth, deep green, pointed, oval, and rather large for the genus. A really desirable hardy shrub, requires a deep, dry loam. Thrives best against a wall. Native of California.

CHAMÆBOTIA FOLIOLOSA (Very-leafy Chamæbotia).—This is also a Californian plant, a hardy evergreen shrub, sent by Mr. W. Lobb to the Exeter Nursery. It may be called the Fern shrub, the leaves being broadly oval in shape, and thrice divided. Flowers white, like in form to a Bramble or small Rose. The plant is compact and dwarf, erect and much branched. A desirable addition to our list of handsome hardy shrubs.

CLEMATIS VITICELLA v. *VENOSA* (Veined Clematis).—This Vine Bower is a hardy, climbing, deciduous shrub of great beauty, possessing the following good properties:—The flowers are nearly four inches across, and of a rich purple colour veined with crimson. The white styles are tipped with the prevailing colour—purple. It has the advantage of continuing a long time in bloom. For pillars and walks this is a decided acquisition.

COTONEASTER BUXIFOLIA (Box-leaved Cotoneaster).—A hardy evergreen shrub from the Indian hills. It was sent home by Mr. T. Lobb to the Exeter Nursery, and is the true species of Dr. Wight. Flowers white and very numerous; habit dwarf and compact. A neat, desirable shrub, and perfectly hardy.

DENDROMECON RIGIDUM (Stiff Dendromecon).—We all know the tribe Poppy, mostly annuals and perennials. Here we have a shrubby Poppy with bright yellow flowers, produced singly at the ends of the branches; leaves lanceolate and of a greyish

colour; habit a small shrub with woody stem and branches. A showy flowering shrub, blooming in summer.

EMBOTHRIUM COCCINEUM (Scarlet Embothrium).—A truly splendid, perfectly hardy shrub. Though not new, it is as yet rare. It has stood the winter for the last five years. Sir W. Hooker describes it a "handsome evergreen shrub, with racemes of the richest scarlet flowers." Leaves medium size, rich dark green and very handsome; habit good and a free bloomer. Everybody having a garden ought to grow one or more of this fine shrub.

FREMONTIA CALIFORNICA (Californian Fremontia).—A curious, handsome shrub, with leaves shaped like those of the Fig-tree. The beauty of the flowers consists in the large, showy, golden calices, produced profusely on short spurs. A handsome desirable plant.

OLEA ILICIFOLIA (Holly-leaved Olive-tree).—This rivals in fragrance the sweet Olea, and has larger flowers of a white hue. It is also evergreen, and the leaves are flat, serrated, oval-shaped, and prickly like the Holly. Native of Japan.

PRUNUS TRILOBA (Three-lobed-leaved Plum).—Flowers freely early in spring, semi-double, rose-coloured, and very beautiful, rivalling our pink double-blossomed Thorn, and equally hardy. It is supposed to be a native of China.

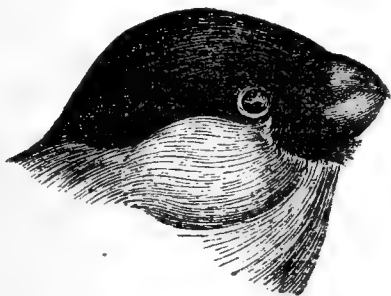
RHODODENDRON FORTUNI (Mr. Fortune's Rhododendron).—Leaves six inches long, oblong in shape and quite flat, deep green on the upper side and whitish beneath, perfectly hardy, and a distinct species.

RHODODENDRON LIMBATUM.—A handsome, curious variety, raised by Mr. Standish. The flowers are crisped at the edges, blush in the centre, margined with deep crimson lake, distinct and quite hardy. The garden varieties of these beautiful shrubs are so numerous, that their name is legion. I intend some day to select a few of the best, and give a few ideas on their culture.—T. APPLEBY.

THE CANARY AND THE BRITISH FINCHES. (Continued from page 259.)

4th.—THE BULLFINCH (*Loxia pyrrhula*).

French, Le Bouvreuil. German, Der Gimpel or Dompfaffe.



Of all our English seed-birds, I know of no other so pleasing and engaging in confinement as the Bullfinch. Their pretty plumage, tameness, and winning actions, causing them to be general favourites.

They are in size about that of a common Sparrow. The beak is thick, rounded, and black in colour. The head also is thick, and the neck rather short, giving the bird a dumpy and not very elegant shape. The shanks of the legs are slight, and I have found their legs and wings are more apt to break, especially when handled, than the generality of other cage birds.

In plumage, the top of the head, wings, and tail, are glossy black. Tail and wing-feathers having purple and steel-blue reflections. The rump and vent white; the back bluish-grey; and the breast in the cock is red, but in the hen grey brown. The nestling plumage differs from the adult, in the head, neck, breast, and back, being of a dirty brown. The tail, wings, and rump being the same as in the old birds. They are very generally diffused over the British Islands, though not so plentifully as many other seed-birds. They inhabit woods, copses, plantations, and shrubberies. The nest is built in a thick bush or shrub, and usually from three to five feet from the ground, formed of twigs and roots, and lined with fine roots; among which are occasionally a few bents and hairs; but I have never seen either moss, feathers, or wool in any I have found. The number of eggs varies from three to six. They are rather blunt, of a bluish-white, with some dark spots at the thicker end.

They have many provincial names—as *Nopes*, *Pope*, *Hoop*, &c., and are sometimes called "Pick-a-bud."

In a wild state they seem to feed chiefly on seeds, the kernels of some berries, and buds.

Dr. Bechstein, in his "Natural History of the Birds of Germany," gives the following as their bill of fare:—"The seeds of fir and pine, mountain ash, buckthorn, hornbeam, privet, sumach, dogwood-berries, hawthorn, and juniper. The buds of maple, red beech, oak, and pear. Linseed, buckwheat, millet, rape-seed, nettle and grass seeds." And he further remarks that "the seed of *Spiraea opulifolia* is to them a great dainty."

Some years, in winter or spring, when they are unable to procure other food, they repair to the orchards, fruit trees, and bushes, and feed on the buds; consequently, most gardeners persecute and destroy these interesting little birds under the impression that they do much harm, and that may account for their not being more numerous. There is no doubt about their eating the buds of plum and cherry trees, as also of gooseberry bushes; but I believe the injury done is very greatly exaggerated. Some writers affirm that they only eat such buds as are already attacked by a grub; but that would be more like the habit of the Titmice, for I do not think the Bullfinch ever eats insect food. My reason for thinking the injury done by these birds is greatly exaggerated is derived from the following facts that have come under my notice:—In 1847 I was living at Salehurst, Sussex, and in the spring the Bullfinches came in great numbers to the fruit trees. Being desirous of catching some, I requested that they might not be shot or driven away, and I set traps for them; but without success. In a few days after, the gentleman with whom I resided showed me the trees and bushes stripped of their buds, the snow beneath the trees being scattered over with the bud-cases. He remarked that, in consequence of sparing the Bullfinches, they would lose all the fruit that year. I examined a green gage tree in particular, and I could not find a bud on it anywhere, and I regretted to think I had been the unthinking cause of such destruction. But, after all, the trees blossomed well, the fruit set, and they had abundance of fruit that summer on those very trees which had been so stripped of buds. I do not pretend to explain it, but the next year the Bullfinches did not show at all among the fruit trees, which blossomed beautifully; they were one mass of bloom, but they did not bear any comparison of fruit to the year before when the Bullfinches cleared the trees of buds. I have often since been laughed at for trying to persuade others not to kill the Bullfinches, but to let them eat the buds. By noticing the effect, and pointing it out to my neighbours, some of them have also been convinced—one in particular, who showed me his gooseberry bushes stripped of buds; was very angry with me because I would not believe but that he would have fruit there. He said it was impossible. "Wait and see," said I; and those very bushes were loaded. I remarked it to him. "Ah!" he said, "it was a good fruit year;" his bushes had escaped the blight, but if those Bullfinches had not pecked the buds he should have had more. The next winter not a single Bullfinch appeared in his garden, and that summer his gooseberries were a complete failure. I asked him how it was the trees did not bear that year. It could not be the Bullfinches? "No; it was the frost, the blight, or something else." But I was pleased after a year or two's more experience to hear him say he would never kill another Bullfinch, for he had noticed, since I told him of it, that wherever they came there was most fruit. The truth of these facts I can vouch for; why it is so I cannot tell.

If taken from the nest and brought up by hand, Bullfinches may be taught to pipe or whistle a tune. Many are annually imported from Germany that have been so instructed. Their education consists in keeping them from hearing any other birds, placing them in a small basket, feeding them every two hours or thereabout, and after each meal covering them up to prevent their attention being diverted, and playing or whistling their lesson over to them two or three times; and even after they feed themselves it is necessary to continue their tuition incessantly for nine months. Some birds can learn as many as three tunes, but it is rare for them to pipe them without fault, and it is often necessary to whistle their tunes over to them after the moult, to prevent their forgetting them. One tune well piped is, perhaps, better than three imperfectly.

W. A. Osbaldiston, Esq. (1792), says, "Some have been taught to speak several words at command, and I have heard my father relate of one that among other words could say 'mother.'"

Even if caught old they are easily tamed, being naturally very

docile. Their natural song is a soft low whistle interspersed with some curious sounds, and accompanied with bowing and waving of the tail and other whimsical and grotesque movements. Their low plaintive call of "tui, tui," their undulating flight, and white rump, are means of easy recognition.

Dr. Bechstein mentions white and many beautiful pied specimens; and they not unfrequently become almost black in confinement from being fed too much on hemp-seed. I do not approve of either hemp, rape, or linseed as a food for them. I prefer Canary-seed, millet, buckwheat, and shelled oats, with an occasional treat of a few apple-pips, or slice of apple or pear, lettuce, groundsel, and plantain.

At the Crystal Palace Bird Show, 1858, were exhibited two hybrids between a cock Goldfinch and a hen Bullfinch, which were very beautiful birds. Dr. Bechstein says that Mules are sometimes bred from a hen Bullfinch brought up from the nest and mated with a merry cock Canary, but the union is not often prolific; the eggs should be reared under other Canaries; and that these Mules are very good singers.—B. P. BRENT.

(To be continued.)

SUBSTITUTE FOR THE YELLOW CALCEOLARIA.

I WAS glad to see an article in THE COTTAGE GARDENER (No. 588), from Mr. Robson upon this subject, one of such vast importance to the modern flower-gardener. Yellow being one of the primary colours in the arrangement of our ribbon-borders, beds, &c., how is it possible for us to dispense with it? Indeed, so indispensable is it, that if one class of plants fail to supply us with the necessary quantity, we must resort to another; and, strange to say, that, until the last two or three years, our friend the Calceolaria has been so very accommodating, that the thought has scarcely arisen in our minds to find a substitute, in case sickness should incapacitate it for further duty.

The species of plants to resort to for this desideratum are so limited, that it would appear almost a hopeless task to find a substitute embracing so many shades of yellow as this favourite does; but I, like Mr. Robson, do not despair of finding them, and that from two sources; and, first, from that which he suggests as most probable, the Nasturtium. I grew *Tom Thumb*, (the new variety), rather extensively last season, and it was really a showy thing, and a great step in the right direction as to habit; but it has too much orange blended with the scarlet to be any match for a good bed of *Tom Thumb* Geranium or any of its rivals.

The same firm are now sending out a new yellow variety of this, which has received a commendation from the Floral Committee of the Horticultural Society; and if it do not realise all our desires, I anticipate the parent of a new race that will ultimately enable us to dispense with the Calceolaria—that is, so far as a sole reliance being placed upon it.

Perhaps some of your subscribers may not be aware how they may obtain a good supply of this novelty the first season. If so, I will relate my adventures with the original *Tom* last season. In February I procured a packet of seed, sowed it in a little heat, and potted off the seedlings as soon as large enough. These soon grew and supplied me with cuttings; and these again, in conjunction with the old plants, until, as Mr. Beaton would have it, the third and fourth generation; so that by bedding time I had all I wanted.

With a view of supplying our gardens with a really worthy subject, I would suggest a diligent watch over all seedlings; and wherever an improvement is perceptible, either in form, habit, or colour, to take great care of the seed, selecting the best again from this. I doubt not but that it would repay the trouble of hybridising.

The second source from which I expect a substitute for our treacherous friend is the Chrysanthemum. A variety has been grown for several years in our gardens under various names in the trade circulars. Suffice it to say, that it is a softwooded greenhouse variety, of a shrubby, free-flowering habit, capable of resisting drought better than the Calceolaria. No doubt but that its pedigree may be traced to the old *Coronarum*. I have been informed that it originated with Mr. Fish, and, I believe, has been recommended in these pages. Even under its present aspect it is no mean substitute for the Calceolaria, and I have no doubt but that under careful seeding it is capable of great improvement. As a confirmation of this, from a batch of seedlings raised last season I was enabled to select one which appeared a decided improvement upon its progenitor, being as double and compact

as a Pomponne. I hope it will maintain its distinctive features under cultivation. I mention this as an incentive to others to commence cultivating this plant with this object in view, trusting that success will crown their efforts.

Now, a word about the Calceolaria in answer to a correspondent in No. 590 of your Journal, and in confirmation of your own views of its failure. In speaking of this plant we often give it one general appellation, as if we had but one variety, consequently requiring but one treatment; whereas we have many, and these differing materially in all those qualities which constitute a worthy ornament of our flower gardens. Would it not repay us to have a trial-ground for these, as well as for Geraniums, Verbenas, &c., taking care to treat them precisely alike, yearly selecting those that best answer our purpose?

As to their failure, my views entirely coincide with your own. As a confirmation of this, previous to last season I kept the plants in boxes and pots until planting-out time, when they were one mass of hard, impenetrable roots. When planted they appeared to thrive for a time; when gradually, one by one, many ceased to exist, presenting sorry blanks in beds and borders. Being rather provoked by this state of things, I determined to adopt another course which I have found to answer admirably. In October, 1858, I selected a spot under a north-east wall, having first made the surface hard; I then put on it about three inches of light soil, leaf mould, and sand well incorporated; on this I placed small one-light boxes which I use for raising seedlings, &c. I then put in the cuttings as thick as I could fairly place them, well watered and then shut them down close. They received no further attention, except covering up in severe weather, and giving occasionally a little air. I left them in that position until the beginning of April, when I lifted them with a nice lot of roots into a prepared north border, planting them about three inches apart. In this position they remained until they were finally planted out, protecting them during sharp frosts. When transferred to the flower garden they certainly presented a pleasing spectacle, with good healthy foliage and a mass of fine, luxuriant spongioles, which a slight watering would penetrate to the stem. Under this treatment I had not half a dozen out of a hundred of a variety called *Vincent*, and none out of *Aurea floribunda*, which disappointed me. They continued flowering the whole season. *Salviaefolia* did not please me; it flowered well at first, but soon ceased, presenting that stunted appearance so much complained of until late in the autumn: consequently I have consigned it to the rubbish-heap. To illustrate the necessity of a trial-ground for these as well as other denizens of the flower garden before giving them any prominent position there, I have grown *Angustifolia*, *Vincent*, *Viscosissima*, *Kayii*, *Golden Chain*, *Salviaefolia*, *Corymbosa*, and *Aurea floribunda*, and have only selected two as answering my purpose. They are *Vincent* and *Aurea floribunda*.—STEPHEN AMEY, *Saling Grove*.

THE CONVULVULUS MOTHS.

THE name of *convolvuli* is given to these moths because of their larvæ feeding on the leaves of the *Convolvulus arvensis* or Bindweed. It is the largest of our Hawk moths, except the Death's head and Privet; and some of the females are as large as the males of those giant species. Like them it is rather rare, and is of an ash-brown colour with dark zigzag marks, especially on the upper wings, and dark and pink alternate rings on the abdomen. It appears in September after very hot summers; still it is widely dispersed over the country, being found as far north as Caithness in Scotland. It cannot be inferred, however, from this that the moth is more hardy than some others of its species, or butterflies that are only found in southern counties—such as the sulphur butterfly, which is never seen beyond the Tweed. Still it is very hardy, and often appears in February. Want of food for the larvæ cannot be the cause of its not being seen further north; and perhaps if some of the chrysalids were placed amongst Buckthorn or Alder trees on which the caterpillars feed, our northern neighbours might soon have primrose-coloured butterflies a considerable time before the less hardy white ones appear.

These remarks may also apply to some other early kinds of moths and butterflies, especially from North America. However, the sulphur one appears annually, while some others vary, and are sometimes found after the lapse of several years. The *Convolvulus* moth seems to be one of these. The absence of sufficient heat to hatch its eggs, or chrysalids, may be the cause; for the moth is only seen in September after a hot summer.

This seems more likely than the notion of the larvæ being destroyed by the brood of ichneumon flies. I need hardly observe that moths are somewhat like bats—flying about at night after food. The *Convolvulus* one flits over the blossoms of *Petunias* and other tubular-shaped flowers, and extracts their sweets with its long proboscis. This most remarkable appendage is fully two inches long, somewhat like a piece of wire split in two scrolls at the end; and when not used is curiously rolled up out of sight, like the chameleon's tongue. The moth is very quick when on the wing, but less so when among the flowers. When caught with a net, and got under a large tumbler glass, care should be taken to quickly still it with chloroform, or smoke from a lucifer match, or puff ball, to prevent its fluttering about and destroying its lovely colours.

I have some very fine specimens of *Convolvulus* moths, about ten years old, preserved by being merely kept dry, and are nearly as beautiful as when the insects were alive. I am not acquainted with their larvæ; but they are figured of a green colour with yellow stripes and black spots, and are about four inches long. They belong to the genus *Sphinx*, of which the Privet caterpillars are a good type with the horny appendage on their tails. These, like some other kinds of grubs, seem to sham death when disturbed upon a branch or twig. They throw their heads backwards, and remain motionless for a considerable time. When in that position they somewhat resemble the fabulous sphinx of the ancients.—J. WIGHTON.

LEAKING AQUARIA.

CAN you help me out of a very serious difficulty? I some time ago had a very handsome aquarium made, holding about forty gallons. It is made of mahogany and glass, and lined with thick slate, two sides being plate-glass. For some months after it was made it held water perfectly, after which it commenced leaking. I sent it to a very ingenious man in this neighbourhood, and suggested to him the use of the cement mentioned in *THE COTTAGE GARDENER*—gutta percha and pitch. He reported to me that, though it formed a very good covering for wood, it adhered very imperfectly to the slate, and scarcely at all to the smooth surface of the glass. He stopped up all the joints with a mixture of red lead and gold size, which so perfectly answered its purpose that for some months it held water without losing a drop. Within the last day or two I have been very much annoyed to find that it commenced running again, and has materially injured one of my best carpets. How can you explain this? Does the water gradually dissolve the cement? And how can it be prevented? I find that many of my friends are in the same predicament, having given up their aquaria from the constant annoyance they have caused them.

I think you will agree with me that so great a source of amusement and instruction as the aquarium has proved it is a pity it should go out of use. I, for one, should be very much obliged for information on the subject.—ELIZABETH.

[We should try marine glue; but we insert the inquiry for the purpose of inviting answers, because we know that many besides our correspondent would be obliged by information on the subject.]

THE INFLUENCE OF ASPECT ON THE CULTURE OF PEACHES

IN THE NORTH OF IRELAND.

A CORRESPONDENT (A. J. Ashman), writing in *THE COTTAGE GARDENER* of December 20th, 1859, page 179, on the cause of failure in Peach growing, takes occasion to issue an invective against the prevailing custom of choosing young gardeners from large places. Whether his remarks are in good taste, or likely to improve either the education or practical and scientific attainments of young gardeners, I very much doubt; and it must be left to your readers generally, and those employers who engage their gardeners from large places in particular, to form their own opinions, which, I doubt not, will in most cases be in favour of engaging them from such large places. However, it is not as the mouthpiece of young gardeners that I write to you, but to mention a few facts bearing on Peach culture, which may not be uninteresting to your readers generally, and may be placed in juxtaposition to A. J. Ashman's assigned causes of failure,—ungenial soil, and inefficient drainage.

A wall here with a south-east aspect has been devoted to the

growth of Peaches ever since this garden was formed, about ninety years since; and I am told by parties who have known it about thirty-five years, that six or seven sets of trees have been planted and worn out in that time, and that they have been the whole time in the most wretched condition, though not planted and managed by young gardeners from large places, but by men of ability and experience, amongst whom was Mr. Ellis—a name mentioned some time ago by Mr. Beaton, and to whose abilities as a gardener I doubt not Mr. Beaton can bear testimony.

This said Peach-wall coming under my management, I thought, as probably "A. J. A." would have done, that the ill looks of the trees were caused by ungenial soil and inefficient drainage. I examined the border, and found the soil a nice hazelly loam, which had been cut from a sheepwalk resting on limestone. The drainage was also examined and found to be efficient. What *could* be the cause of the unthrifty state of the trees? Want of protection from spring frosts. Do you think so? Yes.

Protection was applied. A board projecting eleven inches from the wall had been adopted by my predecessor. In addition to this I placed some calico coverings, which were made to roll up and down at pleasure. These were not used to induce a tender habit in the trees, but merely to shield them from frost, and they did it right well; for we had the thermometer at 20° of Fahr. on several occasions when the trees were in blossom, yet they set good crops of fruit.

But did the trees improve in appearance? No, they still continued in their unhealthy state. Then what could be the cause of failure? They must have contracted disease when in the nursery, probably by being headed down for several years in succession. Well, then, get young trees and try your hand at them. We did so; and profiting by the experience we had gained from having a tree on a wall with a S.W. aspect, and which was always in a most healthy state and bore as much fruit as six trees upon the S.E. aspected wall, we ordered a dozen maiden plants, two of a sort. We selected the six best plants for the S.E. wall, and planted the worst six against the S.W. wall; and to be sure of the experiment being properly carried out, for experiment it was, I planted and managed them with my own hands.

They were planted on stations; holes were dug out about eighteen inches deep; the bottom was concreted; and upon it was laid about a foot of broken stones, some coarse gravel over them to prevent the soil filling up the interstices, and the soil consisting of hazelly turfy loam dug from the sheepwalk before-mentioned, with the addition of a little leaf mould and sand. What were the results? The trees on the S.E. aspect showed the same tendency to disease as the older ones, and made many ineffectual attempts to grow; but with little or no progress until the month of July, when they made some weak watery shoots. Not so those on the S.W. aspect. They at once started into growth in the spring, and continued growing without intermission until the autumn, by which time they had made shoots from three to four feet long; their wood was well ripened, and the leaves fell, having performed their office in a way to give one both pleasure and satisfaction. The experiment was now considered conclusive.—G. C., *Armagh*.

(To be continued.)

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 244.)

PLUMS.

Alderton. See *Sharp's Emperor*.

ANGELINA BURDETT.—Fruit above medium size, round, and marked with a suture, which is deepest towards the stalk. Skin thick, dark purple, thickly covered with brown dots and blue bloom. Stalk about an inch long. Flesh yellowish, juicy, rich, and highly flavoured, separating from the stone. Shoots smooth.

An excellent dessert plum. Ripe in the beginning of September, and if allowed to hang till it shrivels, it forms a perfect sweetmeat. The tree is a good bearer and hardy.

AUNT ANN (*Guthrie's Aunt Ann*).—This is a large, round plum, of a greenish-yellow colour. The flesh of a

rich, juicy flavour, and separates freely from the stone. Shoots smooth.

It ripens in the middle of September. The tree is very hardy and productive.

AUTUMN COMPÔTE.—This is a very large oval-shaped plum, raised by Mr. Rivers, of Sawbridgeworth, from Cooper's Large. It is very handsome, and the skin is of a bright red colour. As a culinary plum, or for preserving, it is of the first quality. When preserved the pulp is of an amber colour, flavour rich, and possessing more acidity than the Green Gage does when preserved. It is ripe in the end of September. Shoots smooth.

AUTUMN GAGE (*Roe's Autumn Gage*).—Fruit medium sized, oval or rather cordate, marked with a shallow suture, which extends to half the length of the fruit. Skin pale yellow, covered with thin whitish bloom. Stalk three quarters of an inch long, not depressed. Flesh greenish-yellow, juicy and sweet, with a rich and excellent flavour. Shoots smooth.

An excellent dessert plum. Ripe in the middle of October. The tree is an excellent bearer.

Avant Prune Blanche. See *White Primordian*.

D'Avoine. See *White Primordian*.

Azure Hâtive. See *Blue Gage*.

Battle Monument. See *Blue Perdrigon*.

Becker's Scarlet. See *Lombard*.

BELGIAN PURPLE (*Bleu de Belgique*).—Fruit medium sized, roundish, marked with a shallow suture, one side of which is a little swollen. Skin deep purple, covered with blue bloom. Stalk about an inch long, inserted in a cavity. Flesh greenish, rather coarse, very juicy, sweet, and rich, slightly adherent to the stone. Shoots smooth. Ripe in the middle of August.

BELLE DE SEPTEMBRE (*Reina Nova; Gros Rouge de Septembre*).—Fruit large, roundish-oval, marked with a shallow suture. Skin thin, violet-red, thickly covered with yellow dots, and a thin blue bloom. Stalk half an inch long, slender, inserted in a shallow cavity. Flesh yellowish-white, firm, juicy, sweet, and aromatic. Shoots downy.

A first-rate plum for cooking or preserving; it furnishes a fine crimson juice or syrup. Ripe in the beginning and middle of October.

Black Perdrigon. See *Blue Gage*.

Bleeker's Gage. See *Bleeker's Yellow Gage*.

Bleeker's Scarlet. See *Lombard*.

BLEEKER'S YELLOW GAGE (*Bleeker's Gage; German Gage*).—Fruit medium sized, roundish-oval, marked with a faint suture. Skin yellow, containing numerous imbedded white specks, and covered with thin white bloom. Stalk downy, an inch and a quarter long, not depressed. Flesh yellow, rich, and sweet, separating freely from the stone. Shoots downy. Ripe in the middle of September.

Bleu de Belgique. See *Belgian Purple*.

BLUE GAGE (*Azure Hâtive; Black Perdrigon; Cooper's Blue Gage*).—Fruit of medium size, quite round. Skin dark purple, covered with a blue bloom. Stalk three quarters of an inch long. Flesh yellowish-green, juicy, briskly and somewhat richly flavoured, separating from the stone. Shoots downy.

A second-rate plum. Ripe in the beginning of August.

BLUE IMPÉRATRICE (*Impératrice; Empress*).—Fruit medium sized, obovate, tapering considerably towards the stalk, and marked with a shallow suture. Skin deep purple, covered with a thick blue bloom. Stalk about an inch long, not depressed. Flesh greenish-yellow, of a rich sugary flavour, and adhering to the stone. Shoots smooth.

A first-rate plum either for the dessert or preserving. Ripe in October. The tree requires a wall, and the fruit will hang long on the tree, when it becomes shrivelled and very rich in flavour.

BLUE PERDRIGON (*Brignole Violette; Battle Monument; Perdrigon Violette; Violet Perdrigon*).—Fruit

medium sized, oval, widest at the apex, flattened on the side marked with the suture, which is shallow. Skin reddish-purple, marked with minute yellow dots, and covered with thick greyish-white bloom. Stalk three quarters of an inch long, inserted in a small and rather deep cavity. Flesh greenish-yellow, firm, rich, and sugary. Shoots downy.

A good old plum, suitable either for the dessert or preserving. The tree requires to be grown against an east or a south-east wall; the bloom is very tender and susceptible of early spring frosts.

Bolmar. See *Washington*.

Bolmar's Washington. See *Washington*.

Bonum Magnum. See *White Magnum Bonum*.

Bradford Gage. See *Green Gage*.

Bricette. See *Mirabelle Tardive*.

Brignole. See *White Perdrigon*.

Brignole Violette. See *Blue Perdrigon*.

Brugnon Green Gage. See *Green Gage*.

Bullace. See *White Bullace*.

Bury Seedling. See *Coe's Golden Drop*.

Caledonian. See *Goliath*.

De Catalogne. See *White Primordian*.

Catalonian. See *White Primordian*.

Cerisette Blanche. See *White Primordian*.

Chapman's Prince of Wales. See *Prince of Wales*.

CHERRY (*Early Scarlet; Miser Plum; Myrobalan; Virginian Cherry*).—Fruit medium sized, cordate, somewhat flattened at the stalk, and terminated at the apex by a small nipple, which bears upon it the remnant of the style like a small bristle. Skin very thick and acrid, pale red, and marked with small greyish-white dots. Stalk three quarters of an inch long, slender, and inserted in a small cavity. Flesh yellow, sweet, juicy, and subacid, adhering to the stone. Shoots smooth.

More ornamental than useful in the dessert, but is good when baked, or in tarts. Ripe in the beginning or middle of August.

CHESTON (*Dennie; Diaprée Violette; Friars*).—Fruit medium sized, oval, and rather widest at the stalk; suture scarcely discernable. Skin purple, thickly covered with blue bloom. Stalk half an inch long, slender, and not depressed. Flesh deep yellow, firm, brisk, and with a sweet, agreeable flavour, separating from the stone. Shoots downy.

A dessert or preserving plum. Ripe in the beginning and middle of August.

Coe's. See *Coe's Golden Drop*.

COE'S GOLDEN DROP (*Bury Seedling; Coe's; Coe's Imperial; Fair's Golden Drop; Golden Drop; Golden Gage*).—Fruit very large, oval, with a short neck at the stalk, and marked with a deep suture, which extends the whole length of the fruit. Skin pale yellow, marked with a number of dark red spots. Stalk about an inch long, stout, and not depressed. Flesh yellow, rich, sugary, and delicious, adhering closely to the stone. Shoots smooth.

One of the finest plums, and adapted either for the dessert or preserving. It ripens in the end of September. It is much improved by being grown against a wall.

Coe's Imperial. See *Coe's Golden Drop*.

COE'S LATE RED (*St. Martin; St. Martin Rouge*).—Fruit medium sized, round, marked on one side with a deep suture. Skin bright purple, covered with a thin blue bloom. Stalk three quarters of an inch long, not depressed. Flesh yellowish, firm and juicy, with a sweet and sprightly flavour, and separating from the stone. Shoots downy.

As a late plum, ripening in the end of October, and hanging for a month or six weeks later, this is a valuable variety.

COLUMBIA (*Columbia Gage*).—Fruit very large, almost round. Skin deep reddish-purple, dotted with yellow.

lowish dots, and thickly covered with blue bloom. Stalk an inch long, inserted in a small, narrow cavity. Flesh orange, with a rich, sugary, and delicious flavour, separating from the stone. Shoots downy. Ripe in the middle of September.

(To be continued.)

ORCHARD-HOUSE TREES.

I THANK my friend Mr. Beaton for giving, in page 226, his opinion about spongioles. What an innocent I am!

I never heard or read about the "old doctrine of the annual decay of spongioles;" but having, for some years past, observed, in top dressing my Peaches, Nectarines, and Vines late in autumn and winter, that nearly all the fibrous roots of the preceding year were invariably dead and decayed, I came to the conclusion that "seeing is believing," and that orchard-house trees and Vines in pots really do lose annually in winter the larger portion of the small feeding-roots (call them what you will) they have made the preceding summer. Moreover, I have, when I have seen thousands of these dead and dying roots, thought of their "formation, use, and application," and have considered their dying annually a wise ordination.

I took my description of the "Houses for the Million" from a gentleman who had seen them, I think, at the Crystal Palace. They will, doubtless, be found convenient, but they are not cheap. A new method of making lights, very recently invented, will in that respect throw them into the shade.—T. R.

SOME EVENTS OF THE OLDEN TIME.

It is somewhat difficult to understand how human ingenuity could discern that the growth of *Poper*y can be dependent upon the growth of *Potatoes*; yet that they were so associated will appear in the course of the following gleanings.

Potatoes, about the close of the reign of Elizabeth, were imported in considerable quantities from Spain and the Canary Islands, but were used as a confection rather than as a nourishing vegetable. Thus in the account-books of the borough of Lyme, in Dorsetshire, when one Mr. Ellesdon was Mayor, in 1595, there is this entry:—

"Given to Sir George Trenchard a fair box of marmelade gilted, a barrel of conserves, orange and lemons, and *Potates*. 22s. 10d."

Eighteen years later they were still rarities, for in 1618 they sold for 2s. per pound.

"Then they were a luxury, and so continued till ninety years ago, when in 1765 Lord Sheffield bought some, and soon after farmers began to plant them in the fields. This novelty experienced the usual fate—viz., that of exciting prejudice against it. At an election at Lewes, Potatoes shared with popery the indignation of the people, and "No Popery! No Potatoes!" was the popular cry. One Moore, an Irishman, planted the first field of Potatoes in Devon, at Poltimore, where he resided. A few farmers around Chard, in Somersetshire, followed this example about 1784. Potatoes excited so much prejudice in France, from a belief they would bring back leprosy once more, that the growing crop required to be watched for protection. So late as 1816 the cook of a large establishment at Valognes, Normandy, did not know how to dress a present of that root sent from Guernsey."

Oranges are said to have been first imported into England from Spain during the reign of Edward I.; but in 1595 they still continued scarce, for then Wheat was 9s. per bushel. Mr. Ellesdon, the Mayor, already mentioned, gave "to my Lord Marquis of Winchester," then Lord-Lieutenant of Dorset, "*Oranges* and *Lemons*, at 6s. the hundred." In 1675, Mr. Walter Tucker, then Mayor of Lyme, at a dinner given to the Judges on the circuit, paid 2s. for fifty Oranges.

In the archives of Southampton, during Edward III.'s reign, we find mention of "Saucers," being persons who dealt in "herbs and vegetables." These when served with meat at dinner are still called "sauce" in many parts of England. We believe the word to be derived from the Saxon *swæc*, pleasant, and especially applied to food; *swæsendu*, was the family diet.

The freedom of commercial intercourse so zealously striven for in the present reign was viewed as one of the greatest evils two centuries since. Even one county of England would not allow its produce to be sold into another county without leave previously obtained from the local authorities. For example:—

"Dorsetshire butter, which retains its reputation, could not be sent to our countrymen residing in other counties who wanted some of it except in defined quantities, and by parties duly licensed at the Quarter Sessions for that purpose.

"Such a license as the following is most valuable to sceptics who might question the possibility of such a state of things having ever obtained. This entry, made at the Michaelmas Session held at Bridport in 1631, will carry conviction with it:—

"For as much as a letter hath been directed unto this Court from the maior of the cittie of Exon. therein prayin that this Court would license one Humfrey Perry, of that citie, to buy butter within this county for the provision of the same: this Court doth therefore give way that a license be granted unto the said Humfrey Perry, for the weekly buying in this countie two horse-loads of butter, and to carry the same unto the said citie for the provision of the same."

"It is amusing to read how powerful an effect the eloquent letter of the Mayor of Exeter produced. The authorities 'gave way,' and the 'outside barbarians,' as the natives of the Dorset 'inside flowery land' might then have styled them, had their two pack-horses with butter in their dorsers."

We often hear complaints made of the prices charged for plants and trees by nurserymen—a complaint most unreasonable when the years of culture, the expenses of importation, and costliness of garden premises are considered. The prices were much higher when we consider the relative value of money in the seventeenth century. Here is an example—

TREES FOR A GARDEN IN THE REIGN OF CHARLES II.

	s.	d.
Apricock tree	1	8
Orange tree	0	8
Pair royal Windsor Pear tree	1	8
2 Kentish Pippins	2	4
2 Flanders Cherries	2	6
26 roots of Provence Roses	5	6
8 young Apple trees	7	0
A Mulberry tree	4	0
Peach	2	6
Medlar	1	0
2 dozen Tulips	3	0

Even at that period, and much nearer to our own times, herbs growing in our own gardens were preferred before foreign drugs, as sanatory remedies.

"Before the introduction of Turnips, Potatoes, &c., the scurvy was very often felt by even the better classes. There were cases of that affection at the time the Potato disease raged from want of vegetables.

"Scurvy grass, which cost by the peck 1d., and diet drinks, so high as 13s. 6d., appear in diaries and account-books.

"The power of herbs against the pestilence or plague itself was declared to be sufficient when these were administered in a drink. The patient was to take:—

Vedervoy	.....	Featherfew.
Matfelon	.....	Black Knapweed, <i>Centaurea nigra</i> .
Mogworthe	.....	Mugwort, Wormwood, <i>Artemisia vulgaris</i> .
Solyge	.....	Sage. (Parkinson in his "Theatrum," says the French called it <i>Saulge</i> .)
Scabyos	.....	Devil's-bit, <i>Scabiosa succisa</i> .
Avense	.....	Avens, <i>Geum urbanum</i> .

"These were to be mixed in equal proportions, washed, and bruised with stale ale, and six spoonfuls taken at a time. If taken in time we are assured "hyt chal distroye the coropcion and safe the man or the woman."*

So powerful and universal were the healing qualities attributed to Sage, that a Latin verse, perhaps satirical, became proverbial, inquiring "Why need man die whilst he had Sage (*Salvia*) in his garden?" It might be a pun upon the Latin name *Salvia*. Be this as it may, it is quite certain that extraordinary medicinal virtues were attributed to this herb. We have before us a volume of 414 pages, written by Christian Francis Paulinus, and published in 1688, entitled "*Sacra Herba, seu nobilis Salvia, &c., selectisque remediis, et propriis observationibus conspersa*." (The sacred Herb, or noble Sage, with select remedies and appropriate observations interspersed.) Nearly 400 pages are devoted to the "Medicochymico-pharmaceutico-therapeutico" uses of Sage.

* Bury M.S., published by the Bury and West Suffolk Archaeological Institute.

Even as early as the twenty-sixth year of Elizabeth's reign so much attention was paid to Ducks that they were marked as Swans are now. A man was then presented at Seaford, by a jury, for marking three ducks with his own mark, and cutting out the owner's marks.

(For most of the preceding notes we are indebted to Roberts's *Social History of the People of the Southern Counties of England*.)

SEA-KALE CULTURE IN THE OPEN GROUND.

We insert the following in answer to the inquiries of "A RECENT SUBSCRIBER, *Littlehampton*."

THERE is no difficulty in having an abundant supply of this delicious esculent by Christmas in the ordinary way of growing it under the common Kale-pots, or under common 12 or 15-inch flower-pots, with their holes stopped up by a cork or even by a bit of hayband twisted in firmly. The Kale-pot is the most convenient, on account of its having a cover or lid; by removing which it can be seen whether the Kale is ready for cutting without having to move all the fermenting material to the bottom of the pots, as must be the case when flower-pots are employed.

The material for covering the pots with.—For this purpose we prefer fallen leaves, as we fancy the Kale eats much sweeter than when fermenting dung is employed; but having abundance of leaves at our command, we always use them with a little long litter of any kind placed tidily over them to prevent the winds from blowing them about.

This common method of obtaining both early and late Kale we prefer to all others. We grow a large quantity of it every year; and we begin cutting about Christmas, though sometimes earlier, and continue to do so in succession until we commence cutting Asparagus in abundance from the open ground.

We generally make our first covering up about the first or second week in November, covering about thirty pots to begin with; and about the 1st of January we cover about thirty more pots; and towards the beginning of February, and sometimes again towards the end, we make our last covering with fermenting material.

We have other beds four feet wide, which contain two rows of crowns, about two feet apart every way from each other. These crowns, when cleared of all their decayed leaves with the finger and thumb, and made clean and tidy, are dusted over with a little quicklime to destroy the slugs, &c. Each crown is then covered over with leaf mould and cinder ashes mixed together, the leaf mould being put through a coarse sieve. This keeps the crowns in the dark all the winter, and acts as a feeder and protector, looking like so many little molehills. To this bed the pots are brought as they become liberated from the forcing-bed. Sometimes a little more ashes is put over the crowns when these pots are placed over them to exclude the light from the young shoots. Here nothing more is used than the pots—I mean no fermenting material is used.

Situation of the beds.—The plot of ground allotted to Sea-kale should always be near the framing-ground for the convenience of conveying the fermenting material to and from it. Where the bed may be otherwise signifies little, so long as the sun can shine upon it six or eight hours in the day, and it is free from the shade and drip of trees.

Soil.—The main point is a good, deep, rich, sandy soil, upon a dry bottom. This is alluded to in its botanical name *Crambe*, which comes from the word *Krambos*, meaning dry, because the plant naturally grows in sandy or stony soil. If the plot of ground which is wished to be allotted to it is not sufficiently deep it is easily made so by bringing other good soil to raise it to the desired depth. This can be readily and well blended with the present garden soil to the depth of two feet and a half at the least. The working of the soil should be repeated several times previously to planting.

The Planting.—The plot of ground may be lined out in four-and-a-half-feet-wide beds, and two-feet-wide alleys or paths between the beds. Let the beds be marked out to take two rows of plants, two feet and a half apart from row to row in the bed, and two feet apart in the row. Three good plants are sufficient to form a bunch to be covered by a pot, planted in a triangular form about eight inches from each other. Planting should be done about the last week in March.

If seeds be sown instead of plants, little circular drills should be drawn about eight or nine inches in diameter, eight or ten

seeds sown in each and carefully covered up. Early attention should be paid to the seedlings as to thinning out and stirring the earth about them with the finger. The thinning out should not all be done at one time; but finally three or four plants should be left to form the future bunch, and then nothing more will be required but attention to earth-stirring and keeping them free from weeds until the end of the growing season.

Winter treatment.—The growing season being over towards the end of October, all the leaves of the plants will be then on the wane; and should then be carefully removed from the crowns with the finger and thumb and cleared away, choosing a dry day for the purpose, when a little top dressing of leaf mould or cinder ashes should be placed over every crown. Then, in order to have Kale by Christmas, one bed may be covered over with proper Sea-kale pots about the first or second week in November; then to be covered up with fallen leaves or dung, as already stated. If dung is so employed it should be turned over two or three times to ferment and sweeten previously to its being placed over the pots. A fine dry day should be chosen for this operation. When the bed is covered up with the fermenting material a stake should be run through the centre of it down to the ground in order to tell the amount of the heat; and if moderately warm after a few days' standing all will be well. If hot, or inclined to burn, the fermenting material must be opened a little to reduce the heat.

The same plot of ground on which we force our Kale has been occupied with this vegetable during the whole of twenty-five years, and the Kale is at this time in excellent vigour. The day I write this (Jan. 23rd), I lifted a pot, under which was as fine a lot of Kale as I ever wish to see; its delicate white stocky shoots being about eight inches high, and enough for two good dishes.

Multitudes of slugs are apt to harbour among the leaves; and where the Kale is cut and the pot taken away these pests are very destructive to the crowns by eating out their hearts to a great depth, and causing many good crowns to become weak and dwindling. To prevent this I always put over the crown, as soon as the Kale is cut, as much cinder ashes as will fairly cover the whole crown. This is an excellent protection to the plants. As said before, the same plot has been occupied with Sea-kale for the last quarter of a century; but about eleven or twelve years ago, during the month of November, and, I think, part of October and beginning of December, a vast quantity of rain fell—so much so, that our garden was almost covered with water for a considerable length of time. Of course, our first batch of Sea-kale was covered up at the time; but, covered and uncovered, nearly all rotted. We that year had to be careful and make much of our other plot, which happened to be out of the water. Well, we trenched out all the old roots, and the soil too, to the very bottom of it; and happening to have a heap of soil, which was composed of something of all sorts, but the greater part of street and road-scrappings, the whole of it was put upon this plot of ground, and thoroughly mixed up with the old garden soil. In the first week in April this plot was lined out into beds, and sown in the mode already detailed. The following November we made our first covering as usual, and so on in succession as before said, and finer Kale I never cut; I took a first prize with it about the 10th of the following March.

Whenever I find a blank in the row, or a crown becomes very weak, I take it away, and then fork up the spot deep and well, adding one or two spadefuls of leaf mould. This is well mixed up with the other soil, and then cuttings are taken from the larger crowns to fill up this blank. These cuttings, taken off the larger crowns, are in most cases without any root at all, are planted, and the pot is put over them just the same as it would be over the best and strongest crowns.

As soon as the pots are all fitted to the bunches, then every crown is well dusted over with quicklime and covered with the pot that instant; and should there be a slug there this is death to it. Then the leaves are also put over the pots as speedily as possible, thus warming the soil round about new-planted cuttings, and setting them all at work together. The cuttings make roots readily, and many of them put up very fine heads; but whether weak or strong, all are cut at the cutting time.

Rhubarb may be grown near the Sea-kale, and may be brought forward in the same manner; but deeper pots, crates, or butter-tubs, are required for covering over the stools. The best kind I know is the *Royal Albert*. This is excellent in quality and very early. The stalks are large and of a beautiful crimson colour.—
T. WEAVER, Gardener to the Warden of Winchester College.

THE WEATHER AT FROME DURING 1859.

THE following particulars recorded by a self-registering thermometer, of the average temperature in the shade of each month of the past year, at North Hill, Frome, have been kindly forwarded to us. The details will be of interest to the scientific portion of our readers, and may be relied on as accurate.

1859.	Highest temperature during the month.	Lowest temperature during the month.	Number of days that rain or snow fell.	Amount of rain in each month.	Number of frosty nights in each month.
January	49	24	13	2·00	11
February	53	28	16	2·48	10
March	59	25	15	3·20	17
April	75	21	17	3·37	11
May	75	34	12	1·70	..
June	79	42	13	1·74	..
July	87	50	8	2·30	..
August	80	43	13	2·40	..
September	68	42	9	2·30	..
October	69	23	12	2·32	6
November	55	20	13	3·00	5
December	55	14	16	2·36	15
Total			157	29·17	75

—THE DOCTOR'S BOX.

PUBLIC GARDENS *versus* PRIVATE GARDENS AS TEACHERS.

MR. BAILEY, in THE COTTAGE GARDENER of January 10th, says truly, "The arrangement of the shrubs at the Crystal Palace is charmingly done." He should have said *was* charmingly done; it is so very easy for after-unskilful managers to destroy those ultimate features which the original designer had in view when the first planting of the whole was accomplished. The after-thinning and regulating of the shrubs and trees ought to be done by the same master-hand by whom they were first planted, with a view to the successive thinning which would eventually be necessary ere the different shrubs arrived at their mature size. Of course, the same hand is not always to be secured; but, at any rate, the person in charge ought to be imbued with the same principles of correct taste which pervaded the mind of the original designer. There are certain rules and principles of judicious thinning and regulating of shrubs and shrubberies which cannot be departed from without the person who departs from those rules committing the most flagrant solecisms.

I write this much lest the designer who so charmingly "did" the original arrangement should be saddled with the fooleries and utter want of taste which characterised some of the alterations of his successors, and threaten to nullify another part of Mr. Bailey's paragraph—viz., "That it will at some future time show itself as an illustrious example of the taste of Mr. Milner."

Mr. Milner's original design presented innumerable bold and striking effects, by introducing *groups* of distinct and unique character in appropriate positions, opposed to the present patch-work system of filling up a vacancy with any shrub that possesses the desideratum of stopping a gap; the principles of association and suitability in an artistic point of view being left wholly out of the question. As a late employée, I speak from experience of the style of management now obtaining, having entered with a view to improvement in what I was given to believe to be the first school of ornamental and flower gardening—a course I certainly would not recommend to any young gardener. My own experience confirms me in the belief that the doings at the Crystal Palace and other like places are greatly over-coloured, and that in nine cases out of ten we shall find the flower gardening better done in private gardens, notwithstanding all that may be said about the Crystal Palace or any other place setting the fashion in flower gardening. There are no arbitrary fashions in gardening, but certain principles of correct taste in the arrangement of colour, &c., which cannot be departed from with impunity, the knowledge of which is not confined to the flower gardeners of the Crystal Palace or any other public place. Certainly, such places possess an advantage over the generality of

private gardens in the greater extent of the beds for showing off the effect of colour; but, for my own part, I have been much more pleased, and, I may say that I have derived a great deal more instruction from the inspection of private gardens than from those I may call the crack public gardens so much lauded and extolled.—UN CI-DEVANT PREMIER OUVRIER.

TO CORRESPONDENTS.

COPPER CORD (*A. A. O.*).—That of which you enclosed a specimen is as strong as the chains you allude to; but you can have copper cord still stronger and more flexible, at Messrs. Newall's, Strand, London. It is quite impossible for any one to foretell how many bunches of Grapes ought to be left upon your Vines, the roots of which were lifted last October; so entirely must it depend upon the vigour exhibited by the Vines. Besides, we neither know what is their age nor what varieties they are. You had better let them be under-loaded than over-loaded.

MILLET-SEED (*A Novice in Wilts*).—Sow early in April, very thinly, in drills a foot apart, and thin the plants to a similar distance, for the panicle branches considerably. No other culture than hoeing is required. The seed ripens in August. The soil should be light, and the situation warm.

ASPARAGUS FORCING (*Alpha*).—We do not understand your objection, that there is not height enough in a frame thirty inches high. After the shoots have been cut, and the roots will yield no more, these are thrown away, and fresh roots put in the season following. No shoots are allowed to remain as you seem to suppose "to mature the crowns."

EDGING TILES (*Subscriber*).—There is a firm at the foot of the Hungerford Suspension Bridge, on the Surrey side, where they make them.

AN AMATEUR IN DIFFICULTIES (*B. C. W.*).—We sympathise with you, but cannot help you in the way you mention. We can only publish general calendars of work to be done weekly, and answer, as we are always ready to do, any inquiry made by a correspondent who is suffering or is in doubt, under some exceptional circumstances. It would be a life's labour to imagine difficulties, and how they should be removed. Pray send us any special inquiry, and it shall be specially answered.

EVERGREENS (*An Amateur, Loughborough Road*).—We agree with you in thinking that evergreens might often be employed more liberally than deciduous trees; but in towns the soot attaches to their leaves, disfigures and destroys them. When you have any results of practices, or novel observations to communicate, we shall readily publish them.

CIRCULAR BED IN CENTRE OF FIVE SMALLER CIRCULAR BEDS (*A Constant Subscriber*).—Your plan of bedding is the first we have seen of an idea that was suggested by Mr. Loudon, as far back as 1833 or 1834, to get rid of Star-and-Garter beds. It is on the promenade style, in groups of five circles round a middle circle, each group having six beds and reading from the centre. The one side of a curved walk is bordered with groups of these circles on grass, and the other side is planted with a ribbon-border. It is very effective and telling on the eye, quite new in public life, and is of all other modes the easiest to do well; and the mode or plan of planting may be altered in all the beds every season. Every group stands on its own merits. The rule for a single circle of beds round a centre bed or centre object, as a dial, statue, or vase, is that the centre bed should be of a different style of plant, or quite different in colour from the plants in the beds lying round it. Your first group will tell the tale. No. 12, the centre bed, may be white, yellow, or scarlet; and the five circles round it, must not have the same white, or the same yellow, or the same scarlet-flowering plants. But the scarlet from Verbenas being so unlike the scarlet of Geraniums, any good red Verbena might occupy any of the beds round a scarlet Geranium-bed. Again: As you have five side beds in each group, they cannot and ought not to be planted in pairs; so that every bed in the group stands on its own merits, and every group the same. If the centre beds, 12 and 18, are seen in a line from the windows, as we expect they are, do not plant them the same way. 18, being farthest off, plant with *Tom Thumbs*, and 12 with some yellow *Calceolaria*; and let 6 be planted with *Brilliant*—a variegated *Tom Thumb*. Each of these may have an edging. Selecting plants you will succeed in better than ourselves.

DIANTHUS HEDDEWIGH (*D. B.*).—You will find full directions for sowing this at page 391 of our No. 574.

OUTSIDE BLIND FOR GREENHOUSE (*Tatham*).—Nothing is better than canvass for the purpose. In "Greenhouses for the Many," price 6d., you will find at page 11 full directions for fitting up such a blind.

CANNAS AND LANTANAS (*Rose*).—We will endeavour to meet your wishes next week. Lantanas for bedding will depend a good deal on your position, but of that we know nothing.

MARINE INSECTS (*Cat*).—We are not aware of any Beetles, properly so called, being inhabitants of the sea. If we saw a specimen of the animal you allude to, we may possibly be able to tell you what it is. The animals known at Brighton under the name of Sea-spiders are species of Crabs belonging to the genus *Maia*. They generally live in deep water, and rarely approach the shore. The Green Tree-Frog is only to be obtained in the months of May and June, when they are sold for about 1s. each. If you refer to Mr. Bridgen, of the Railway Arcade, London Bridge, he will be able to give you information about them.

ORNAMENTAL TREES (*An Old Subscriber, Richmond*).—Robinias are the same as Acacias, or Cobbet's Locust. Tulip trees often fail on light soils like much of that about Richmond; but *Ailanthus glandulosus* is full grown in perfection in the lower parts of Kew Gardens, and is safer for you to match with the Catalpa. The Yellow-barked Ash is a slow and low-growing tree requiring little room. Your trees are all very select; but the best school for trees, and for you to examine and consult, is next your own door. Kew is the grand emporium for such, and what does there will surely do with you. All the best trees are named there; and you are sadly deficient in evergreen trees, and tall shrubs, and tree-like shrubs, of which there is no end in Kew Gardens. September was about the best time for moving Portugal Laurels, but the frost came too soon for them. The second week in May and the last of August are the right times

for these Laurels, but much depends on their roots. Try younger plants; no plant is more ornamental.
NAMES OF PLANTS (*H. C. Blackwood*).—Yours is *Garrya elliptica*. (*An Original Subscriber*).—Your plant also is *Garrya elliptica*. It is not a native of Australia, but of Northern California, where it was discovered by the unfortunate Douglas in 1827, who named it after Mr. Garry, Secretary of the Hudson's Bay Company. There is a good figure and description of it in the *Botanical Register*, t. 1686.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JANUARY 31st and FEBRUARY 1st and 2nd. CHESTERFIELD AND SCARSDALE. *Hon. Secs.*, Mr. J. Charlesworth, and Mr. T. P. Wood, jun. Entries close January 11th.
FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). *Sec.*, Mr. W. Houghton. Entries close Jan. 14th.
FEBRUARY 29th, and MARCH 1st, 1860. ULVERSTONE. *Sec.*, Mr. T. Robson. Entries close February 11th.
MAY 23d and 24th. BEVERLEY AND EAST RIDING OF YORKSHIRE. *Sec.*, Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.
JULY 18th and 19th. MERTHYR TYDVIL. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.
N.B.—Secretaries will oblige us by sending early copies of their lists.

HATCHING DUCKS UNDER HENS—MOVEABLE NESTS.

It is a good plan to sit hens on Ducks' eggs, as there is less trouble with them. They will hatch in twenty-eight days. I have had them hatch in *twenty-six*. I sat two hens last season on Ducks' eggs, from which I had twenty-two Ducklings; three were killed accidentally, but the remainder lived to be killed in a different manner. At two months old they weighed from 8 lbs. to 9 lbs. a couple. Their pan was always full of barleymeal, and the cost was but 3s. a couple, including the eggs. Whereas the same Ducks, if sent to market, would have fetched 6s. 6d. dead. The hen was most attentive; a large board was placed from the ground to the pond, to allow the Ducklings to enter.
Your correspondent "G. M.," in your number of January 17th, may not have any moving nests; therefore, I would recommend him to sit his hens at night. I have frequently made the most troublesome hens sit in this way. There is a superstitious idea among the country people in this county (Devonshire), that if hens are sat after twelve o'clock at noon, there will be no chickens; but any sane person would repudiate such an idea.—W. R. E., *Plymouth*.

SYDNEY POULTRY CLUB.

THE spring exhibition of this very useful Society was held in the Temperance Hall on November 1st. The exhibition consisted of an unusually large assortment of almost every variety of poultry, including Spanish, Dorking, Cochín-China, Poland, and Golden Hamburgh fowls; also several pens of Golden, Silver, and English Pheasants, just arrived in the colony by the *La Hogue*; and a collection of beautiful Finches from Port Curtis. The Black Spanish and Cochín-China fowls were some of the finest ever exhibited by the Club, and were the objects of general remark and commendation. There were also a number of very fine Turkeys, which were much admired, notwithstanding that they were defective in plumage. Many of the Geese exhibited were remarkably fine, as were also the White Aylesbury Ducks, though one or two other specimens were decidedly inferior, one pen being scarcely equal to the common English breed of Ducks seen in every farmyard. It was a matter of general regret that the plumage of all the birds was more or less rough and unsatisfactory, and which would, doubtless, have been in a much better condition had the exhibition taken place a month or six weeks later in the season. The Rabbits, both as regarded their number and quality, were fully equal to those exhibited at the previous exhibitions of the Club. Besides the unprecedented variety of poultry that was entered as competitors for the prizes, there were several pens of rare birds that were not exhibited for competition. Among these may be mentioned a beautiful *Nicobar Pheasant*, a Golden Pheasant, and a *Victoria crowned Pigeon*, the property of Mr. Alfred Denison; also, a splendid Golden Pheasant, and an English and Silver Pheasant, the property of Mr. Joseph Windred. A number of exceedingly small *Burmese Bantam* chickens, exhibited by Mr. Holroyd, attracted considerable attention, and were much admired.
His Excellency the Governor-General, accompanied by Lady

Denison and suite, visited the Exhibition in the course of the afternoon, and expressed themselves well pleased with the arrangements. The Show was also patronised by a large number of persons interested in the breeding and improvement of poultry, as well also by many other ladies and gentlemen.
The prize Judges appointed by the committee were Messrs. Duncan Maitland, John Row, and Walter Bradley; and their decisions appeared to give general satisfaction.

PURE HONEY IN OLD COMBS.

SOMETIMES honey is equally as pure in old dark combs as in new ones. Some years back I exhibited at a horticultural show some honey from both kinds of combs. The Judges seemed to doubt my statement until they saw it drip from the cells. The honey was collected in the early part of the season, when in general it is the purest. One of the Judges was Mr. Savage, of Swaffham, of whom the Rev. Mr. Cotton speaks in his book on bees. I mention this circumstance more particularly from my having said, in my last paper, that honey from old stocks fetched only about half the price of that of new swarms. The difference, however, arises from the mixture of impurities exuding from the old combs with the honey. They come from deposits of pollen, and perhaps propolis, which makes the combs darker and tougher with age; and somehow they contain less wax than new ones, especially after they have held brood.
While on this subject, I may remark that "A DEVONSHIRE BEE-KEEPER" agrees with me in my observation at page 120 concerning a mistake of a writer, who states that bees added about one pound of wax to a hive in the second season. Most probably other impurities were meant; but this shows the necessity of care in expressing one's real meaning. I have also to notice my differing in opinion on bees secreting wax from "A DEVONSHIRE BEE-KEEPER." But as neither of us seems to have anything further that is new to say on the subject, I will merely observe that none of his long extracts from other writers explain clearly how bees convert vegetable wax into materials for comb-building. Indeed that cannot be expected; for, as I said before, the process goes on in their stomachs, or in some internal part of their structure impossible to explain: therefore, any attempt to go further would probably only involve us in the case of the two Scotchmen talking metaphysics, where one dinna ken what the ither meant, and he dinna ken himsel.—J. WIGHTON.

OUR LETTER BOX.

OVER-FEEDING (*D. B.*).—It is very difficult to state the exact quantity of food that should be given to fowls. It differs with the breed, the age of the birds, and the season. If you see any food left in their troughs, they are over-fed. It is a very bad plan shutting birds up in a small enclosure, and letting them have a run once a-week. They ought to have a run for a few hours daily.
INCUBATORS.—A correspondent, *Epsilon*, would be obliged by the information where either Cantelo's or Minasi's Incubator may be seen, and by the price being stated. You other query next week.
SENDING EGGS TO THE WEST INDIES (*Nemo*).—If we were wishing to send them for hatching purposes, we should suspend them singly in little nets from the roof of a cabin.
SLIGHT DEFECTS IN BREEDING STOCK (*Rev. E. C.*).—We should not object to breeding from a Dorking cock weighing more than ten pounds, and perfect in form and colours, although his comb does incline slightly to one side, especially as the hens are first-rate. We should not think this defect would be hereditary, and we should be strengthened in the opinion by your statement that the comb at some period seems to have been injured on the side to which it inclines. Do not force the chickens into rapid growth by extra warmth. Forced growth is the origin of many deformities.
HENS AND PULLETS NOT LAYING (*E. J. B.*).—It is quite impossible for us to say why your pullets do not lay, as they are Cochín-Chinas and Silver-spangled Hamburgs. The complaint is very common that eggs are scarce. Try giving them a little hemp-seed once a-week, and ale and toast once in the same period. Barley alone is bad for fowls. Give them soft food, such as boiled potatoes mixed with a little oatmeal, once a-day, and barley or oats once a-day.

LONDON MARKETS.—JANUARY 30.

POULTRY.							
There is still an average demand for everything but Pheasants. They remain difficult of sale.							
	Each—s. d.	s. d.		Each—s. d.	s. d.		
Large Fowls.....	4	0	to 4	6	Cock Turkeys	13	0 to 14 0
Fowls.....	3	0	„	3	6	Hen Turkeys	6 0 „ 6 6
Capons	7	0	„	9	0	Partridges	1 2 „ 1 11
Chickens	2	6	„	2	9	Pigeons	0 8 „ 0 9
Geese	6	0	„	6	6	Hares	2 6 „ 2 9
Ducks	2	6	„	2	9	Rabbits	1 3 „ 1 4
Pheasants.....	2	6	„	2	9	Wild ditto	0 8 „ 0 9

WEEKLY CALENDAR.

Day of M th Week.	Day of Week.	FEBRUARY 7—13, 1860.	WEATHER NEAR LONDON IN 1859.					Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun.	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.							
7	Tu	Tussilago forfaria.	29.322—29.279	43—23	S.	—	32 af 7	57 af 4	rises	☺	14	24	38
8	W	Veronica hederæfolia.	29.480—29.430	45—33	S.	.10	30 7	59 4	28 a 7	16	14	27	39
9	Th	Fraxinus excelsior.	29.478—29.303	47—36	S.W.	.14	29 7	v.	54 8	17	14	29	40
10	F	QUEEN VICTORIA MARRIED 1840.	29.460—29.417	50—35	S.W.	.09	27 7	2 5	21 10	18	14	30	41
11	S	Hippophaë rhamnoides.	29.569—29.526	50—41	S.W.	.04	25 7	4 5	49 11	19	14	31	42
12	SUN	SEXAGESIMA SUNDAY.	29.747—29.608	51—41	S.W.	.22	23 7	6 5	morn.	20	14	30	43
13	M	Viola canina.	29.897—29.747	51—33	S.W.	.08	21 7	8 5	13 1	☾	14	30	44

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 45° and 31.6° respectively. The greatest heat, 65°, occurred on the 10th, in 1831; and the lowest cold, 1°, on the 10th, in 1855. During the period 131 days were fine, and on 100 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

As plants naturally, after their season of rest during the winter, now begin to grow, it is advisable to shift the young stock, and all others that require it, into fresh soil, by which they will be the better enabled to progress to a healthy-blooming state without check or hindrance. Although from this time to the middle of March is to be considered the most favourable season for a general shift, nevertheless it may be necessary to shift some plants more than once or twice during their season of growth.

CLIMBERS.—To be attended to, removing weak and dead wood, and cutting back to three or four eyes where an increase of young shoots is desirable. To be frequently syringed, to keep down red spider, as they are more liable than other plants to be infested by them.

STOVE AND ORCHID-HOUSE.

The advice given for the shifting of the general stock of greenhouse plants will also be applicable to the fresh potting of the stove plants.

BEGONIAS.—Being of free growth they delight in fresh soil, consisting of equal parts of sandy loam and leaf mould. As a general rule they are repotted in February and August; but exceptions are sometimes made, and a shift is given whenever the roots become cramped or matted in the pot. The knife to be used cautiously, unless with the tall-growing sorts.

GLOXINIAS.—To be now started, if not done as advised a fortnight ago. When planted press the roots gently on the surface of the soil, and give them no water for some time; as the moisture in the soil will be sufficient at first until they begin to grow, when a little may be given, and the supply to be gradually increased as they advance in growth. When potted to be removed to a frame or pit where the temperature is about 60°.

LUCULIA GRATISSIMA.—To be potted in a compost consisting of half turfy loam, one-fourth turfy peat, and one-fourth leaf mould, with good drainage.

MUSA CAVENDISHII.—To be repotted in a compost of turfy loam, vegetable soil, or well-rotted manure, and a small portion of sand, with plenty of drainage. To be plunged in a brisk heat in a bark-bed, and to keep the roots moist.

Many of the ORCHIDS may now be potted, and then placed in the warmest part of the house. The plants that are not shifted to be supplied with a little fresh material, taking care that the embryo buds are not covered. Look over the fastenings of all that are on blocks, or in baskets, and renew the wires where necessary. The temperature to be about 65° by day, allowing it to range to 70° or 75° by sun-heat.

FORCING-HOUSES.

CHERRIES.—Keep up the temperature from 50° to 55° while the trees are in bloom, with as little variation as possible. The trees not in flower to be frequently syringed.

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CUCUMBERS.—The greatest attention should be paid to the state of the bed for the first fortnight after the plants are turned out; the heat-stick (a stick stuck into the bed) should be examined, being, as it is, a much better criterion to judge by than a thermometer, which is generally used to indicate the heat of the atmosphere in the frame; cover up according to the heat of the bed. If it will allow it, a small portion of air should be left on every night, which may be given in the evening after the frame has been closed for two or three hours. Keep up the heat by stirring, renewing, or topping-up the linings; and attend to the stopping of the plants, and the earthing-up of the hills, as the roots make their appearance on the surface.

MELONS.—Pot off the plants when the seed-leaves are fully expanded.

PEACHES.—When the trees have set their fruit, give the roots, if growing inside the house, a good watering with liquid manure, mixed with soft hot water, so as to be of the temperature of the house, or a little above it. The syringe to be used several times a-day in clear, mild weather as soon as the fruit is set.

PINES.—Pot the succession plants. If the pots are full of strong, healthy roots, pick out the crocks carefully without injuring them, leaving the ball entire, and giving them a good shift. But if unfortunately many of the roots are dead, shake the ball entirely away, and cut out all that are dead, preserving such as are alive and healthy, and potting them in fresh soil.

STRAWBERRIES.—Keep up a succession by placing a few dozen pots in a gentle heat once every fortnight or three weeks.

VINES.—All laterals to be stopped in due time, and all useless buds and branches to be removed; the leading shoots to be tied in regularly, and the bunches to be thinned. No more bunches to be left on each Vine than it is likely to bring to perfect maturity. About one dozen bunches are a good average crop for each rod. The temperature to range from 55° to 60° at night, with an increase of 5° to 10° during the day, and even higher during sunshine.

WILLIAM KEANE.

GRAFTING GERANIUMS—ROSES ON MANETTI STOCKS.

THIS time three years, or rather a month later than this three years since, as will be seen at pages 413 and 414 of the seventeenth volume of THE COTTAGE GARDENER, "THE DOCTOR'S BOY" gave the planting of two kinds of flower-beds on the principle of "a more economical character than is practised in large establishments." The spring-bedding being grafted on the planting-out, or summer planting, in a wise and practical manner. He also then and there affirmed, "that striking Roses is no more difficult than striking Gooseberry-cuttings," owing to the "woodcut of the pots and cuttings" which appeared in a former number of THE COTTAGE GARDENER. And then and there also, he, "THE DOCTOR'S BOY," expressed an earnest wish for "the same treat respecting

grafting Geraniums, with the treatment they should have before and after" they were grafted. These three texts I now intend to write upon in one article—Spring Flower-beds, Rose Cuttings, and Grafting Geraniums. But each of them is of sufficient importance for a separate chapter, were it not that these are busy times, and so many irons are in the fire.

Of "THE DOCTOR'S BOY," or from him, we have not heard lately, but people were so particularly taken with his style and manner of telling his practical hits, the tales came so near to "natur," they would please Sam Slick himself, that he would be a welcome visitor just now, to help to arrange for the spring flower-gardening. As a cross-breeder, I heard from him later than my readers, when he sent me specimens of two very beautiful small, or minimum-like seedling Geraniums, of the *Lucia Rosea* breed, which make beautiful and novel edgings to some beds, or small beds on their own merits; and I shall take his subjects in the order of their pressure for time, grafting Geraniums being now one of the most pressing businesses of the season.

Any Geranium will graft now faster and more surely than at any other season when the work has to be performed in-doors. But out in the open garden they will come from grafting quite as safely, if not quite as fast, from the middle of June to the end of July. It is not a wise plan to put a very strong-growing Geranium on a weak kind for a stock, nor is it better to put a very weak grower on a stock of a very strong-growing sort. And, lastly, speaking in plain practice, there is no use in grafting ordinary Geraniums at all; it is only the very weak ones, which may be very beautiful in themselves, that are worth the trouble of grafting, or are improved by being grafted on kinds a little stronger than themselves. *Tom Thumb* would make the best stock for the *Golden Chain*, the *Silver Chain*, the *Rainbow*, and other Roses of that breed; but any plain Geranium which is as strong as *Tom Thumb*, or variegated kind, which is a match for the variegated *Tom* itself—namely, *Brilliant*, need never be grafted, for if one wants them, and such as them, for standards, or half-standards, or say from eighteen inches high in the stems to thirty inches and thirty-six inches, they can be had so on their own roots, as clean and clear as anything from cuttings made and provided for, on purpose, this month, and through one half of the month of March, and they have a chance on to the middle of April; but the sooner cuttings for making standards from are made in the spring the easier they are made, and the better the stems look after they are thus provided for.

Again: At the very beginning of July is the best time to make long cuttings in the open ground for standards. The worst time, however, to make such cuttings is better than to go without them, if you happen to want standards made that way. All the precaution against future plague and bother is to lay a sure foundation against suckers ever attempting to show their ugly heads, and that is as easy to do as to dot the letter i, when one has the cutting in hand. You have merely to pick out the buds from the bottom part which is to be buried in the sand or compost. All the buds above the soil may be dealt with differently. They may be allowed to grow three joints, and then be stopped, and be kept stopped at each joint after that to the end of August or middle of September, care being taken that all that are made of them before midsummer are cut off clean the same year, and in time to have the wounds healed over before winter. Hence, one good reason for getting the cuttings made as early in February as the cutting-beds are in motion.

If the stem for the standard Geranium is not at its full height that summer by the 20th of June, you may leave all the eyes on the growth of that July and August, to be stopped next season at the three first joints. The tufts of leaves on the spurs help to steady and increase the bulk of the stem surprisingly. But the shoots which

are made by most kinds of plants before our midsummer are apt to spread their roots, so to speak, under the bark; and when some of the kinds—and Geraniums are of the number—once root on their own account in the bark of the stock, the whole ingenuity of man will not be able to prevent hidden eyes from these roots springing out of the stem to the end of its natural life. Therefore, you see what a saving it would be to cut the little spurs at the end of the first growing season.

Then, for grafting, the Geranium-stocks ought to be ten times more diligently disbudded at the first make of the cutting, the side-shoots stopped early, and the spurs from the stopping entirely and efficiently removed in good time in the autumn. The wood of the stock should be two years old where it is to be grafted, for softwooded shoots never "take" half so well if they do not mould and damp under the operation. It is not so much the age, however, which is the ticklish point in choosing a Geranium-stock, as the state of a hardwooded one, be it two or twelve years of age. If it is very hard indeed, it will not form a union with the graft for months to come; if one degree softer than the right softness, away it goes to Death's dominion.

Such, then, are the necessary conditions for a Geranium before it is grafted; but I did not know them when "THE DOCTOR'S BOY" asked for the information this time three years back. I had to live and learn the while. I killed lots of Geraniums before I hit the right course, and I have lots now of the most remarkable stocks in Europe or America for grafting Geraniums on. Almost all my standards which I prepared last summer, by taking out the eyes on the stems, lost the top parts by that early frost, the stems being yet as fresh as ever, but destitute of eyes. They are now in a good condition for grafting; and without grafting them they would be of no use, as they can never form new eyes to make heads with.

The way to proceed with them would answer for all other stocks of the same kind, and it is this:—Bring them into a hot frame or propagating-house, and if they could be accommodated with a mild bottom heat all the better; but the bottom heat is not absolutely necessary. If the plants are turned into a dry hothouse, or vinery, the grafting will succeed, though not so quickly. Side-grafting is the mode I use; and the bottom part of the graft is pretty firm wood. Cut a slice down from the top of the stock an inch, or a little more, and cut across the bottom, which leaves a notch on the stock. Cut the graft to fit on this notch, and fit both sides of the bark of the graft to the bark of the stock; but a fit only on one side will answer nearly as well. Bind the parts with soft matting or worsted, which is softer and better; and there is no need of clay, moss, or anything extra. Keep the sun from them, and in six weeks the union is complete, or so far fixed as to enable you to loosen the bandage, and to allow it being tied more loosely. I would keep them thus loosely bandaged for a couple of months, and I would give them the benefit of being planted out of doors the first summer, even if they were intended for pot plants.

Some of the standard Geraniums which were exhibited at the Crystal Palace were grafted by wedge-grafting, and I have seen them done by saddle-grafting; the last is the surest mode, but it is the most troublesome to do. The "saddle" is made in the way of layering a Carnation, with the "tongue" over the top of the stock, which top is cut in the form of a wedge. Wedge-grafting is the easiest; but if wet get to it, or the place is very damp, it is more likely to rot than the side-grafting, and the union is not so soon hidden. For wedge-grafting the stock is cut square across, then slit down the middle about an inch and a half. The bottom of the graft is made in the form of a wedge, and the wedge-end is pushed down in the centre slit, taking care to have the barks fit on one side at least. The tying is the same in all the ways.

I have grafted very succulent shoots of other plants, which I guarded from wet and damp in a way not often heard of. After finishing the tying, a piece of paper is wrapped round and round the stock, and tied a little below the graft, the top of it being formed into the shape the grocers do for tea—a kind of funnel shape, the bottom of the funnel clasping the stock, and tied to it; then fill the paper funnel with striking sand or charcoal dust; and I do not recollect having ever failed with a graft done that way. Perhaps the soft part of Geraniums would graft also with that precaution.

The next question in this reverse order is that of Rose-cuttings. "THE DOCTOR'S BOY" found them come as freely as Gooseberry-cuttings from our woodcut; but others have failed in cutting a figure that way or by any of the usual ways, and this winter we took another step. I recommended the Rose-cuttings to be grafted on stocks down close to the roots, and to plant them deep, in order that the grafts might root on their own account, as they did in the Cemetery at York; also on six-inch pieces of any Rose-roots which were not old enough to form eyes for suckers. It is now time to prepare for that mode of rooting Roses, and the grafting may be performed after the manner of side-grafting Geraniums. But I must caution the unwary against a most dangerous and unaccountable delusion, which has got wing through a fatal misunderstanding of my firm and practical meaning for grafting Roses so low down on the Manetti-stock as to enable them to root on their own account—enable them to get on their own roots at last—by a process which seems more certain with amateurs than that of simply putting in cuttings. The credit of the invention of that plan of burying the grafted or worked parts of Manetti is due to my worthy and most practical friend, Mr. Rivers. It is a most practical plan, and in most parts of this country and latitude a most necessary plan too; for without it no Rose in the catalogue would live four years on the Manetti-stock, as I can vouch for from sad experience. Donald Beaton an advocate for the Manetti! Good gracious! And the "Italian difficulty" not yet accomplished!—I mean accomplished, not settled.

One-quarter of the people here and in America are not yet aware of the fact that their Roses fail by either being grafted on the wrong stock or on the wrong end of that stock. Graft them as I would have them worked, and bury the grafted part as Mr. Rivers, who knows ten times more of the Manetti than I do, has recommended; and nobody need ever be the wiser about which roots will take the lead. Then, and not till then, may this Italian difficulty about having Roses like our neighbours be settled to the comfort of us all and to the credit of the inventors of so comfortable an idea. Yet, after all, the truth seems to be this, judging from the scores of letters about Roses which have reached THE COTTAGE GARDENER for the last five years:—Out of every ten places in this kingdom where Roses are grown, one place suits the Manetti-stock tolerably well—that is, the plants do not absolutely die on it in a few years in that one place out of ten; but in the nine other places not one healthy leaf, or shoot, or bud of a Rose, has yet been seen on the Manetti after the third year.

In another estimate, one place out of a hundred will grow Roses on the Manetti just as well as they would on their own roots, and ten times better than ever they would on the Dog Rose; but the ninety-nine were a dead failure. If Donald Beaton had happened to be in that one place where the Manetti really did well he would be justified in speaking well of it, and ought to be very sensitive if people with long pens wrote lightly of his conscience for so doing; but if he learned what was going on in these ninety-nine places, and placed himself in the gap for the sake of being a consistent writer, any man lower than a bishop might surely affirm that such consistency amounted only to obstinacy. D. BEATON.

CANNAS FOR OUT-OF-DOOR PLANTING.

"ROSE" would feel obliged by being told what the new bedding Cannas are, and what their names are. She thought that Cannas were stove plants. What are they used for in bedding—their flowers, or their foliage?"

"ROSE" is quite right in thinking that Cannas, or Indian Shots, are tropical plants requiring the treatment of a plant-stove to bring foliage and flowers to perfection. I should be quite as much obliged as "ROSE" for a list of kinds that would suit as bedding plants—that is, bloom profusely out of doors during the summer, as well as produce fine handsome foliage. The chief purpose for which I have ever used Cannas out of doors, was their fine luxuriant foliage as a contrast to other masses of flowers, or for giving a tropical appearance to a sheltered corner or border. For centres of flower-groups they make nice pleasing contrasts; but as the most of the kinds bloom most profusely in winter and spring, and constitute them great ornaments in cool stoves, this must be kept in mind in out-door cultivation—not but that many kinds might be made to bloom in summer and in autumn, but then in general they must receive much more attention to getting them forward in heat than would be at all necessary for the general run of bedding plants. As a rule, plants to bloom out of doors will only do so on shoots that have grown some size before the plants are turned out in June. Of course this presupposes growing in heat and with plenty of moisture. When fine foliage and strong stems are all that is desired, then much growth beforehand is not necessary nor yet desirable; as, the less growth made by the young shoots, the less will the plants experience any check in planting out.

Perhaps I may not be sufficiently up in this matter of Cannas; but I give the above opinion as the result of past experience, and feeling confident that, if any coadjutor or reader can supply "ROSE" with better information, he will at once do so, for I, too, then shall feel greatly obliged.

For the first purpose—flowering out of doors, I should select *Canna Indica* and its varieties, and such-called species as *Achiras*, red; *cærulescens*, purple; *lagunensis*, yellow; *lutea*, yellow; *speciosa*, red; *Warszewiczii*, scarlet; *pedunculata*, orange.

These and others, if carefully raised out of the ground before frost came, would bloom on in a hothouse. But supposing that was not the object, the best plan would be to raise them out of the ground; divide them, if necessary, and put them in pots, and place them under glass, so that the stems left should ripen the roots, or rather the buds at the base of the stems. As soon as the stems begin to decay they may be cut down; and the roots will be safe for the winter if kept dryish and at a temperature of from 44° to 48°. About March they will begin to grow, when they should have all the light possible, a little more heat, and the stems be thinned out so as to leave three or four in an eight or twelve-inch pot. About the 1st of June begin to harden off by free exposure to air; and by the second week turn out the plants in the prepared place. The treatment will thus considerably resemble that given by amateurs to Dahlias; only the roots must not be dry, but must be as scrupulously kept from frost.

For foliage out of doors in summer, and flowering in a stove in winter, the following may be chosen:—*Aurantiaea*, orange; *excelsa*, scarlet; *gigantea*, red and yellow; *latifolia*, pink; and, if only one kind were used, then I should unhesitatingly recommend *iridiflora*—the beautiful scarlet Iris-like-flowered Canna. These will make strong shoots and handsome foliage after being turned out into very rich, well-aired soil in June; but it will be rarely that these shoots will show bloom out of doors, though they may be from six to ten feet in height. When it is desirable to bloom them in a stove, the mass of roots must be divided in October before any frost comes, so that a couple, or three shoots, according to the strength of the kinds, may be attached to each divided piece, and these squeezed into loam into twelve or eight-inch pots. These in a cool stove will bloom all the winter and spring; and the stems, cut down, will be fit for planting next June. Where this convenience of a stove does not exist the plants may be treated as advised for the first group.

"ROSE" may say, however, "It is all very well talking so nicely about dividing the roots of these Indian Shots, and giving them this and that treatment; but as I cannot get chickens without eggs, so neither can I divide plants nor plant them out without first having them; and how I am to get them is the question." All right and proper. Well, our great nurserymen have these plants less or more; though, from what some ladies and gentlemen have told me, they do nothing in that way in comparison to

what is done by the nurserymen about Paris and Brussels. If what has been told me is true, wonders are done with these plants at Versailles and elsewhere. If plants are procured this spring, it would be advisable to plant them out in June, in order to give them a more vigorous growth than they could have in any stove, unless very carefully attended to; but unless the plants are pretty strong, it would, perhaps, be as well not to depend for a striking effect from them the first year, and, therefore, not to give them a very prominent place until the second season, when they will have the advantage of receiving no check in packing, carriage, &c. Where this means is not found convenient, then, wherever there is a Cucumber-bed, the plants may be raised from seed, and grown in a vinery, or even in a warm greenhouse,—though in general the plants would not make much show planted out the first season; but they would do the second year, and after that you could divide the roots and supply all the country side when once you had made the Cannas fashionable. Most of our large nurserymen and seedsmen would supply a few seeds of such kinds for from 4d. to 6d. a packet. The seeds, if all right, are as hard and as round as small metal shots; and there is no difficulty in raising plants if the seeds are softened by soaking them for ten hours in water at about 120°, and sowing them in sandy loam and peat, and plunging the pot in a brisk, sweet hotbed, such as would do for Cucumbers or Melons. If this be done in the beginning of March, the plants may be placed separately in small pots in the hotbed, and by the time they are getting too large, the greenhouse, kept a little close at one end, will do for them, or even a window in a sitting-room.

In order that "ROSE" and others interested might have more information than I could give, I wrote to a friend who has done more with Cannas than I have done lately, and the following is the purport of his reply:—"I agree with you that Cannas and many other fine-foliaged plants make a fine display out of doors, in summer. Last summer I turned out a tall plant of *Musa coccinea*, and it did remarkably well. The Canna I chiefly use is *iridiflora*. The plants last season were from eight to ten feet in height, a mass of fine foliage. No flowers are formed or shoots made after they come out of the stove. The flowers are worth little except in winter. Some of these Cannas were supposed to be Musas by a gentleman newly arrived from India. I used them chiefly in a tropical garden, planted permanently with Yuccas, many species; *Arundo donax*; Bambusa, of kinds, *Gynerium argenteum*, &c. In June behind and among these the Cannas were introduced, along with the strongest kind of Indian Corn, *Holcus Saccharatus*, *Humea elegans*, &c., and the effect was good. The Cannas sow themselves at times; but when plants are obtained and large stools I manage them thus:—About the first or second week in October I dig up as many plants as I think I shall require, and divide them very freely with the spade, leaving only one or two shoots from three to six feet in height, and of the present season's growth, and with no great amount of roots to the piece. I then put each of these pieces into a twelve-inch pot, putting merely a crock over the hole, and filling up with rich loam, and afterwards I treat the plants as if they were half aquatics. These flower all the winter in a temperature of about 50° by fire heat and a good rise from sun heat. About April the plants are put into a cool greenhouse where no fire is used. About the beginning or middle of May the plants are set out under the protection of a Yew tree. Towards the end of the month, or when finishing bedding, I plant them out in a compost as rich as I can get, and water and puddle them well like one of the old school. For mere summer display I think the roots would require little more care than Dahlias."

"ROSE" may now judge whether Cannas will be favourites or not. A twelvemonth past last autumn they were used for the centre of small grouped beds at the Crystal Palace; but they will get a great deal stronger when the rotten dung, &c., can be given so freely as not unduly to stimulate mere bedding plants.

R. FISH.

HEATING A SMALL GREENHOUSE.

In your number for January 24th, a correspondent (who is, I suppose, like myself an amateur) wished to know the best mode of heating a small greenhouse. In reply, I should like, through your valuable paper, to state the manner I heat my small house. It is a lean-to greenhouse, with three-feet back lights, facing south; side covered with glass 12 feet by 10 feet; 7 feet by 8 feet at the east end is tiled, which I have for the purpose of potting, and for keeping pots and other small articles.

It is heated by a small flue, height two bricks (flat common bricks), and the top covered with common bricks. The flue runs under the front stage, along part of the west end, and then under the centre of the back stage. The size of the fire is about 12 inches high, 12 inches broad, and 18 inches long. The bottom of the flue is about 5 inches above the grate, and by that means I get a good draught. A cartload of coals which cost (in Sunderland) 3s., will serve the whole winter. I generally make the fire up about eight or nine o'clock, P.M., which keeps a good heat until seven o'clock the next morning, and secure from any frost, from 40° to 45°. If required, I could have from 45° to 50°.

During the late frost in December, on one occasion the thermometer stood outside at 12°, I did not lose a single plant, although I am not more than three hundred yards from the sea-shore.

In the neighbourhood there are thirty or forty small greenhouses, all successfully heated by small flues.—AN AMATEUR AND CONSTANT READER.

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 224.)

BOMAREA.

Nat. ord., Amaryllidaceæ. Linn. Hexandria Monogynia.

GENERIC CHARACTER.—*Perianth* six-parted; sepals and petals differing in form. *Petaline filaments* earliest. *Capsule* obtusely triangular, dehiscing at top. This genus is chiefly composed of species removed from *Alströméria*.

BOMAREA ACUTIFOLIA (acute-leaved). *Leaves* oblong-lanceolate, many-nerved, twisted at base, nerves pilose above; *umbel* many-flowered, peduncles hispid. 9 ft. Red and yellow. Sept. Mexico.

B. ——— PUNCTATA (dotted-flowered). This variety of the preceding is chiefly characterised by having its petals dotted inside. 6 ft. Sept. Mexico.

B. HIRTELLA (small-haired). *Stem* very hairy; *leaves* densely hairy beneath; *perianth* rather unequal, sepals sub-oval, red, petals spatulate, orange. 5 ft. Red and yellow. July. Mexico. This, we believe, is the same as *B. Macleanica*.

B. OVATA (egg-shaped-leaved). *Stem* smooth; *leaves* smooth, strongly nerved; *peduncles* six; *sepals* obovate; *petals* spatulate. Red and green. Chili. The same, we think, as *B. unciifolia*.

B. SALSILLA (Salsilla). *Stem* terete, smooth; *leaves* ovate-oblong, obtuse, smooth, petioles twisted; *umbels* many-flowered, peduncles two-flowered; *bracts* obovate-spatulate, coloured; *petals* with black patch in centre of inner ones. 5 ft. Green and crimson. June. S. America.

The Bomareas are a section of plants divided lately from *Alströméria*. Like that genus, they require deep, dry, rich, light soil; the roots to be covered with tan or dry ashes, to protect them in winter. They have all a twining stem and a triangular seed-pod, which are sufficient characteristics to divide them from *Alströméria*. Trained to a wall or to stakes they are beautiful objects. Propagated by seeds and division of the roots.

By seeds.—Gather them when ripe, and keep them in a dry room till March or April; then sow them in pots in a gentle heat; as soon as the seedlings are up repot them in small pots, and when well established plant them out where they are to bloom.

By division.—Take up the plants very carefully in April and divide them with a strong knife, taking care not to injure the tuberous roots, and preserve an eye or two to each part. Replant immediately in a proper place for them, where they will have space to grow in fresh soil. They will flower the same year, if not divided too severely.

BOLTONIA.

Nat. ord., Asteraceæ. Linn. Syngenesia superflua.

GENERIC CHARACTER.—*Involucre* imbricated, scales narrow. *Receptacle* foveolate, rather pilose. *Pappus* toothed, awned, rather two-horned.

BOLTONIA ASTEROIDES (Starwort-like). *Leaves* lanceolate, all quite entire, smooth. 3 ft. Flesh. Sept. N. America.

B. GLASTIFOLIA (Woad-leaved). *Lower leaves* toothed, glaucous. 1 ft. 6 in. Sept. N. America.

A genus of pretty plants but little known, allied to the beautiful genus *Stenactis*. They require a light sandy loam.

Propagated by taking up the plants in March, and dividing them, but not severely, into moderate-sized portions, replanting immediately in fresh soil.

BORAGO—BORAGE.

Nat. ord., Boraginaceæ. Linn. Pentandria Monogynia.

GENERIC CHARACTER.—*Calyx* five-parted. *Corolla* rotate; limb five-lobed; throat furnished with emarginate processes. *Filaments* conniving. *Nuts* one-celled, turbinate, fixed to bottom of calyx.

BORAGO CRASSIFOLIA (thick-leaved). *Leaves* lanceolate-acute, fleshy; *corolla* limb-segments unequal, linear-lanceolate, spreading. 2 ft. Pink. June. Persia.

B. CRETICA (Cretan). *Calyx* longer than tube of corolla, reflexed; *leaves* ovate, crenately undulated, edges rather ciliated, upper leaves nearly sessile. 1 ft. Blue. May. Crete. It is the *Trachystemon creticum* of some botanists.

B. ORIENTALIS (oriental). *Calyx* shorter than tube of corolla; lower leaves cordate; *corolla* segments revolute. 2 ft. Blue. June. Turkey. It is also known as *Trachystemon orientalis*.

The common blue Borage, esteemed as food for bees, will give the reader a good idea of these handsome perennials. Any good garden soil will grow them well.

Easily propagated by taking up the plants in April, and dividing them into well-rooted parts, replanting immediately in fresh soil, or in a fresh place.

T. APPLEY.

(To be continued.)

LONDON HORTICULTURAL SOCIETY.

A SPECIAL general Meeting of this Society was held January 31st, at the house of the Society of Arts, John Street, Adelphi. Rev. L. Vernon Harcourt, V.P., in the chair, when the following members of the Royal Family were elected Fellows:—H.R.H. The Prince of Wales, H.R.H. The Princess Alice, H.R.H. The Prince Alfred, H.R.H. The Princess Helena, H.R.H. The Princess Louisa, H.R.H. The Prince Arthur, H.R.H. The Prince Leopold, H.R.H. The Princess Beatrice, H.R.H. The Princess Frederick William of Prussia, H.R.H. The Duchess of Kent, H.R.H. The Duchess of Cambridge, H.R.H. The Princess Mary.

Amongst the other candidates elected were:—The Marquis and Marchioness of Aylesbury, Colonel Hugh Baillie, Lord and Lady Cochrane, Sir William and Lady Cubitt, Earl and Countess of Ellesmere, Lord Charles Fitzroy, Earl and Countess Granville, G. Granville Leveson Gower, Esq., Right Hon. Robert Lowe, M.P., Hon. Francis Maude, Sir Roderick I. Murchison, the Duke of Newcastle, Titus Salt, Esq., M.P., Vice-Chancellor Sir John Stuart, Sir Thomas Troubridge, Bart., Professor Westmacott, and upwards of 100 other ladies and gentlemen.

BEDDING OUT IN SMALL GARDENS.

(Continued from page 243.)

THESE circular beds might be planted with equal effect with many other varieties of bedding stuff. If those before described do not suit or please the eye, plant the centre with a good forward plant of the *Perilla Nankinensis*; then the star part of the bed with the *Trentham Rose* Geranium, or *Lucia Rosea*, *Punch*, or any of the Horseshoe-leaf varieties; edge it with *Golden Chain* or *Lady Plymouth*—an Oak-leaf variety, with something the same tinge as the *Golden Chain*, but not quite as bright; a splendid bedder, but not so much in use as it ought to be around this neighbourhood. It is, I believe, wrongly named.

Perhaps some will say that too much of this kind of planting would be anything but effective; or that if all were to bed out in a similar style it would be too much of a good thing. I am of opinion that it would be quite the contrary. Supposing every one planted their different places as nearly as possible alike for a season—or, in other words, suppose them to be all put upon an equal footing, how long would they continue so? Not a week. The quick penetrating eyes of some would soon discover faults which a little artistic skill would very soon remedy; while at the same time others would scarcely be able to discern the sameness, even if it were pointed out to them. This would give all a chance of borrowing ideas. But even then, as I have above stated, some would be very soon left in the lurch; while to the others it would seem a channel through which they were deriving a never-ending source of gratification, which would be to themselves a kind of

pillar, or support, that would be continually urging them upwards and onwards. Looking at it in this light, it seems to be the only road open for getting at what might be termed anything near perfection. There seems to be wanting among gardeners in general a kind of jealousy, or fear, that our neighbours' skill would excel our own, and more especially at this time of the year, when every one is forming his plans for planting or bedding out: this jealousy would then help to cause a competition beneficial to the master as well as the man.

If this kind of spirit were a little more prevalent than it is amongst us all, or those of us who are connected with gardening pursuits, and more particularly those who have the management of small places where bedding out figures among the first orders of the day, there would very soon be a stir in the camp; numberless ideas would be thrusting themselves forward; and every one would then plant out his place in the most stylish manner imaginable; and every year in this part of the science, as well as in others, we should be taking strides in the right direction; it would not be such incautious heedless work as too often proves to be the case at the present day.

Again: Look at the different Verbenas that are out in common cultivation; you will see them in six cases out of twelve huddled together, and appearing to the eye a mass of confusion. This is to be found in beds of all shapes, and often where there is but that one bed on the small spot of green sward that is attached to many villa residences. Look them over. In some you will find upwards of a dozen varieties; in others more, where there were no more than three dozen planted altogether. Some of the weaker-growing kinds, which are generally the newest, when they ought to be at their highest pitch are overgrown and buried by the others. These, then, are lost; and there is the money gone, and a bad name for the nurseryman or florist into the bargain, when, if proper judgment had been used at the commencement, this would have been hindered.

In an oval-shaped bed, or one nearly approaching to that shape, in the centre I should plant *Purple King* Verbena, if one colour only were allotted; but if two varieties, there is none that I have ever seen that will agree better with *Purple King* than *Eclipse*, which is a lively pink and white: these appear very pleasing wherever they come in contact, or are planted side by side. Plant the centre of a circle in the middle of the oval bed with the latter-named, and a ring round the circle with the dark one; then a band of variegated Geranium in a diamond form, which will act as a regulator to the Verbenas that are planted inside this as well as on the outside, which might be planted with *Topsy*, *Sir J. Outram*, *Etonia*, or any other variety that might be preferable. The diamond to be filled with this kind. Then, up to what might be termed the outer margin of the diamond, plant with any rose-coloured variety of Geranium. Then the space between this and the band allotted for the margin to be planted with any variety of scarlet Verbena, with the exception of *Géant des Batailles*, which for this part of the bed is rather too free a grower. The margin to be composed of variegated Alyssum. *Géant des Batailles* might be planted in the centre of this bed; which would be effective, provided the variegated margin of same had its blooms gathered as fast as they appeared. A bed of Verbenas alone is too loose in habit to form a very effective bed, and should be guarded against, more particularly where there is but little planting carried into effect. If an inclination of protruding beyond their limited bounds appears in any part of beds planted in this style, it must be stopped at once, or their beauty will be destroyed. A little pinching back occasionally is all that is required after they are once planted, when they will appear as enchantments to any that shall gaze on them the whole of the season.—A. J. ASHMAN.

COVERING AS AN AID TO HEATING.

IN reading an article in THE COTTAGE GARDENER for the 24th of January, I think "A. R." might save himself anxiety and the lives of his "pets" if he will adopt my plan of having a cover for his small house.

My own greenhouse is ten feet by ten. I have made a cover of Richardson's waterproof cloth, which is either 1s. or 2s. a yard—I think 1s. I have the covering in three pieces for convenience; one piece covers the top, and reaches to the ledge of the front sashes, where it is securely fastened; one piece for each end, and a piece extra as long as the door, and rather wider, which I put on in extra frost, tucking it well in at the bottom, and putting a weight on it. I manage my house in this way:—

If a frost is expected I have a fire for a short time, and shut up the house whilst the temperature is warm. I generally shut up about three o'clock in winter, and at four put on the cover. In the very severe frost we had in December I had the fire made up again at five, P.M., and found the thermometer the next morning at 40°.

At the present time I think if the house were shut up on sunny days an hour before the sun went off it, and the cover put on immediately the sun left it, there would be sufficient natural heat for ordinary greenhouse plants. I suffer from damp, therefore have a little fire most days. I use the white cloth, as, if frost is very severe, the cover need not be removed during the day, and there is light sufficient for the plants for a short period. I have not lost a plant yet; and have *Verbenas*, *Cupheas*, *Ageratums*, *Nierembergias*, *Lobelias*, and many other bedding things, besides *Primulas*, florists' *Geraniums*, and variegated ditto, all looking healthy, and beginning to grow just now. My *Calceolarias* I keep in a cold house, and they do very well.

From observation, I think gentlemen's gardeners and amateurs do not shut their houses early enough.—KATE.

SUBSTITUTE FOR THE YELLOW CALCEOLARIA.

WE observe, in a recent number of *THE COTTAGE GARDENER*, some remarks upon the failure of late years of the yellow *Calceolaria* as a bedding plant, and the difficulty of obtaining an efficient substitute. The direction for relief appears to be in the way of the *Tropæolums*, and we venture to observe that the new yellow *Tom Thumb Nasturtium*,—seed of which we have the pleasure of offering this year for the first time, will be found not only a bedding plant of equal merit with the yellow *Calceolaria*, but, from its masses of blossoms, much superior to that old favourite. Some entire plants of it were exhibited to the Floral Committee of the Horticultural Society last year, and were recommended by them as likely to be of great use as a bedding plant. A correspondent in your issue of January 24th states that the dwarf French Marigold would answer well as a substitute for the yellow *Calceolaria*, but that no seed could be obtained that could be depended upon; we should feel obliged if your correspondent would favour us with a trial, the results of which we feel confident would considerably modify the opinion at present entertained.—JAMES CARTER & Co.

[Judging from the plate we have received, this *Nasturtium* is of a very dwarf, compact habit of growth, and produces a profusion of large, rich, golden-yellow flowers.—EDS. C. G.]

HEATING A COMBINATION OF HOUSES.

I WAS much benefited by your advice at page 69, but there are some points I have neglected to ask you upon, and with which I am not at one with our builder and architect. You speak of a layer of clinkers over the pipes. Now, I presume we must have some sort of a bottom above the clinkers to retain the earth from the heat, which I fear will scorch the roots. The height of the wall and the breadth of the border will give a roof of about 19 feet in length. What depth will the astragals require to be at 13 inches or 14 inches apart, to carry glass of 21 ozs. or 16 ozs. per square foot? We propose to leave 13 inches or 14 inches at the top unglazed, and to substitute a hinged board of wood to overlap the glass a little, and to lift up for ventilation, but too small a space, I doubt. Then the house being divided by a middle wall, as you propose, we still have 18 inches nearly all the length of the front of the upright glass for the Melons' ventilation. The boiler has already three 1½-inch pipes fixed on the top for flow-pipes, and three for the return of the water. We intend to join a double 4-inch pipe to this and carry one arm of each just above the surface of the soil, and all round the edge of the Melon-bed, and return them below the middle of the bed. The other 1½-inch pipes being required for the other houses, my employer wishes me to put Peaches on the mid end division, which I think of no use.

Would you be kind enough to inform me what sorts of Plums and Peaches are best suited for growing in pots?—PUMPKIN.

[You propose, as formerly stated, heating your Melon-house from the orchard-house. For reasons given we would have preferred the reverse—the power to heat the Melon-house without heating the orchard-house at all; but that you may be doing,

We are no admirers of 1½-inch pipes for hot water. We willingly would never have them less than three. The division longitudinally between the orchard-house and Melon-house may be brick and glass, wood, or wood and glass. We presume you mean to have a pathway in the Melon-house sunk at the back, and a door at one end, so that you can step down; or if the roof is to be fixed, and in one sweep from back to front, over orchard-house and Melon-house, we do not see well how you are to get at them, unless you had large openings in the dividing-wall, and attend to them from the orchard-house. The openings for air at the back or dividing-wall will scarcely do for the Melons. You should also have some small openings in the front wall. Besides, the ventilation from the Melons will heat considerably the orchard-house behind; and besides the board at top, we should like to have three or four spaces between the sash-bars to open in front. This longitudinal division will give a bracing to the astragals, or bars for the glass; and, therefore, if these are of good deal, and 3½ inches by 1¼ inch, we presume they will be strong enough. Without this dividing-wall as in the other house, we would have an iron rod longitudinally in the middle, from end to end, and an iron support in the centre. Without that we should consider that bars or rafters of 4 inches by 2¼ inches would be necessary for that length and weight of glass. The mode of heating the Melon-house will answer. The matter of the brickbats is easily settled—say that you have got a depth of a foot above the pipes, place brickbats as hollow as you can all round them, covering six inches deep; then place three inches of small pieces of rough gravel, &c., two inches of finer gravel, and one inch of very fine, or the latter may be rough sand and lime put on when hot, and fresh mixed, and made smooth on the surface. Neither roots nor moisture will easily go through this; so that, if your bed is surrounded with a wall, a few holes should be left to enable you to judge whether moisture is stationary there or not. Not long ago the whole *modus operandi* was described. We are not sufficiently acquainted with your locality to say whether you can get plants suitable near you or not; and we make it a rule never to recommend tradesmen, because we always get honourably dealt with by all such as advertise in our columns, and from these advertisements and recent articles you can be at no loss to know where such articles are to be found. The price generally depending upon size and quality.

We do not know a Peach but may be grown in a pot, and every dessert Plum may also be so fruited. If you have done little in that way we recommend you to consult Mr. Rivers's little book "The Orchard House." Nurserymen, as a rule, on a clear exposition of wants and wishes, will do better for a gardener under such circumstances than we could do, by making out a list for him.]

PRESERVING WOOD.

QUITE recently, while walking in the garden with the Hon. J. W. Fairfield, Hudson, N. Y., he called my attention to the small stakes which supported the Raspberry-canes. The end in the ground, as well as the part above, was as sound and bright as if lately made, but he informed me that they had been in constant use for twelve years! Said I, "Of course they are cyanized?" "Yes," he replied, "and the process is so simple and cheap that it deserves to be universally known, and it is simply this:—One pound of blue vitriol to twenty quarts of water. Dissolve the vitriol with boiling water, and then add the remainder."

"The end of the stick is then dropped into the solution, and left to stand four or five days; for shingle, three days will answer; and for post six inches square, ten days. Care is to be taken that the saturation takes place in a metal vessel or keyed box, for the reason that any barrel will be shrunk by the operation so as to leak. Instead of expanding an old cask, as other liquids do, this shrinks them. Chloride of zinc, I am told, will answer the same purpose; but the blue vitriol is, or was formerly, very cheap, viz., three to six cents per pound."

Mr. Fairfield informed me that the French Government are pursuing a similar process with every item of timber now used in ship-building, and that they have a way of forcing it into the trees in the forest as soon as cut, ejecting the sap, and cyanising it all on the spot. I have not experimented with it, but Mr. Fairfield's success seemed to be complete.

The process is so simple and cheap as to be within the convenience of every farmer, and gardener even, and I therefore thought it so valuable as to warrant a special notice of it.—(Prairie Farmer.)

HYACINTHS IN WATER-GLASSES FAILING.

I SHALL be much obliged if you will inform me from what malady my Hyacinths are suffering. I put them in glasses about the end of October, banished them to the cellar until they threw down their roots nicely, which they did in about three weeks. I then brought them into the dining-room. Soon after the roots died away, and they looked badly. In about a fortnight three or four very thick roots appeared to each bulb, and no end of offshoots began to make their appearance. Ought I to have pulled them off? I did not. Three of the bulbs are set for bloom, and three are grown immensely high, but no signs of bloom. Can you tell me what is the matter with the family? How am I to preserve the bulbs for next season; break off the offshoots or not?—AN ADMIRER.

[We hardly know what is the matter, unless you have neglected giving water, or changing the water, at least two or three times a-week; or that, after giving the plants the stimulus of a warm room, they have been allowed to be frosted in one of the late severe nights. The great length of the leaves leads us to suppose that the glasses have been nearer the chimney corner than the window. It matters little what you do with these offshoots now, as it is not likely the bulbs will be much benefited by removing them, nor can we hold out any hope that bulbs grown in glasses one year will bloom again in the succeeding. The bulbs will require one season's good culture in earth, at any rate.]

SOME OLD-FASHIONED FLOWERS.—No. 5.

THE AQUILEGIA, OR COLUMBINE.

AMONG the many neglected old favourite flowers that are deserving more notice may be classed the Rose Columbine. While the Chrysanthemum, Sweet William, &c., have made some rapid progress, the above once favourite flower is, I believe, scarcely superior to what it was when I was a schoolboy; and I believe there are better varieties to be found in the gardens of cottagers at the present day than in our well-cultivated ones. Surely this is to be regretted; and I trust before many years to see this old favourite flower elevated to the position in our gardens it deserves.

Its easy culture is, no doubt, the cause of its being neglected. But few flowers make a better show in the early season than this old cottage favourite. The graceful drooping of the flowers, its profusion of blossom, its various colours, and the length of time it continues in blossom, should be recommendations of it to every one who has a garden in which to form a collection. Neither are the above all the excellencies of the Columbine—the flowers are large and showy; the plants are no ramblers, but of a size proper for any garden; and these, with the other considerations, combine to increase their value and heighten them in our esteem.

For pot culture the Columbine is well adapted, and well-grown specimens in pots look charming. It is equally deserving of pot culture as the *Dielytra spectabilis*, and will amply repay the cultivator for his trouble.

Some few years since I had the pleasure of seeing a long border devoted entirely to the growth of the Columbine, and I need scarcely say it was the admiration of every one who was fortunate enough to see it when in perfection. No one who has never seen a large quantity massed together can form any opinion of its beauty.

In order to continue them in the greatest perfection, fresh plants should be planted every four years; for it is observable that the youngest plants always exhibit the finest flowers, and as the plants get old they frequently sport in their colours, and from the superlative of elegance in variegation become plain.

The seed should always be gathered from flowers of the best properties—that is to say, from the largest, most double, and the most distinct and brightest in colours. On the same plants flowers with these properties will often be found, and others of an indifferent nature, as in the case of the Balsam. The inferior flowers should be constantly clipped away as they appear, and the best only saved on those plants intended for seed.

The seed may be sown in autumn or spring. Any common garden soil made fine will do for the purpose. The plants will require no further trouble except keeping them free from weeds; and, if the weather is very dry, occasional watering until they are fit to remove. A bed should then be prepared for their reception and the plants placed in rows about a foot apart. Early in autumn they may be removed to the place in which they are

intended to blossom, and in the following May they will produce flowers.

It is advisable, if the roots are intended to be propagated from, not to let them seed, but to crop off all flower-stems as soon as the blossoms have passed.

In order to keep up a good succession of flowers, it is advisable to sow some fresh seed every year, and if you can rely on a friend it will be advisable to exchange seed every two or three years. All those which show bad colours or defective properties should be eradicated at once, and the remainder always kept free from weeds. The ground should be dug between the rows every winter, and a little manure added. This is all the trouble these elegant plants require.—EDWARD BENNETT, *Osberton*.

NOTES UPON FERNS.

NEOTTOPTERIS AUSTRALASICA, J. Sm. (Synonyme, *Thamnopteris Australasica*, Moore.) *Fronds* sessile, simple, elliptical-lanceolate, widening towards the top, coriaceous, glabrous; while very young and before they are unrolled they are covered with a brown downy substance. In full-grown specimens the fronds are three or four feet long, and six inches wide. *Veins* forking; the venules running parallel and producing the sporangia along their upper side, covered by a thin membranaceous indusium. The points of the venules are connected along the margin of the frond by a vein which runs parallel with it. The costa, or midrib, prominent, acute, of a purplish colour.

This noble Fern is a native of Australia, the peninsula of India, and some of the East Indian islands. It is sometimes confounded in gardens with *Neottopteris (Asplenium) nidus*, which is much inferior to it in beauty. *N. Australasica* can at once be distinguished by the midrib being very acute below, while in *nidus* it is rounded. It is often called "the Bird's-nest Fern," from the fronds being thrown out from the centre so as to leave an open cup-shaped space. The leathery texture of the dark-green fronds, with the narrow parallel lines of sori, the dark purple midrib, and the habit of the plant, cause this to be one of the greatest favourites of the whole family. It succeeds well in a house, the minimum temperature of which is 40°, but grows stronger in a stove.

BRAINEA INSIGNIS, J. Sm. (Synonyme, *Bowringia insignis*, Hook.) A dwarf tree-fern; the stem two to four feet high, densely covered with coarse, brown, shaggy hairs. *Fronds* pinnate, three feet long; pinnæ linear-lanceolate, four inches in length, nearly sessile, margin crenated. *Veins* branching, forked; the lower venules anastomosing (as in Woodwardia and Doodia), so as to form a single line of areoles on each side of the midrib. The sporangia attached to this transverse vein, and sometimes to the bases of the outer free venules. *Sori* naked—that is, without an indusium. *Stipes* short, clothed with hairs similar to those on the stem.

This curious Fern has all the appearance of a Cycad at the first glance, the fronds being thrown out from the top of a short thick stem. It is a native of Eastern Bengal and China. It was introduced from Hong Kong by Dr. Bowring in 1852. It has up to the present time been very rare; but having been raised from spores by one or two of the Belgian nurserymen within the last year or two, it is to be hoped that it will soon become more common. It is very distinct, and well worthy of general cultivation. It appears to succeed better in a stove than in a cooler house.

ASPENIUM HEMIIONITIS, Linn. (Synonyme, *A. palmatum*, Lam.) *Fronds* occasionally three-lobed, but more generally palmate or five-lobed, the middle lobe being the largest, acute, cordate at the base, coriaceous, glabrous; while in a young state dotted with minute scales, which drop off before the fronds attain their full size. Five principal veins from which the others fork. *Sori* produced along the upper side of the venules, covered by a narrow indusium. *Stipes* six inches long, purplish at the base. *Rhizome* thick, creeping or erect.

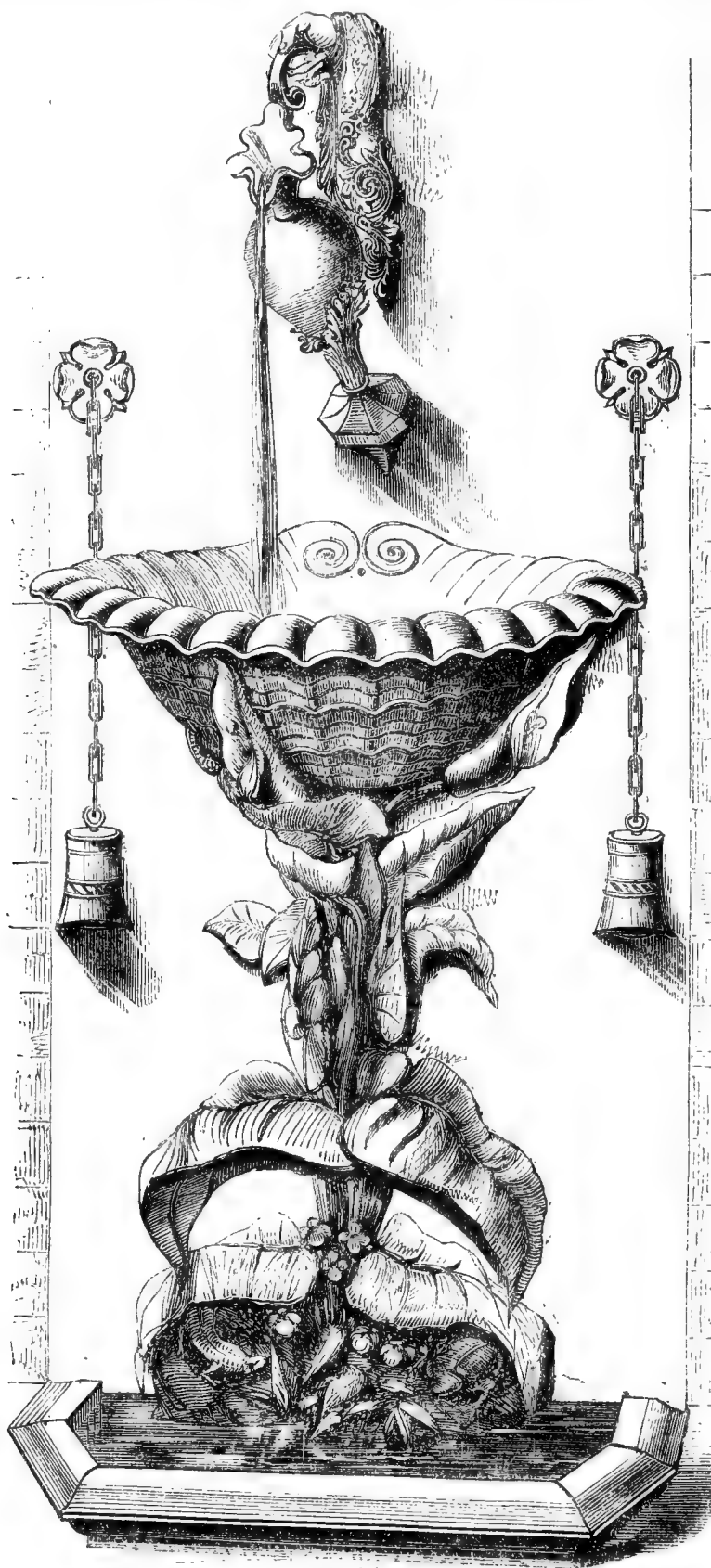
This very distinct Fern (of which the fronds are shaped like the leaves of the Ivy, and like them are of a glossy green), is a native of the European and African shores of the Mediterranean; it occurs also in Madeira, Teneriffe, and the Cape de Verd islands. A friend writing from Madeira says, "I could never find this Fern on the south side of the island: indeed, all Ferns are more rare there than on the north side. In the forests at the head of the Serra d'Agoa valley it is very common. It is seldom seen at places with an elevation of more than 1000 feet. We saw it growing on the roofs of some of the cottages mixed with a bluish-

leaved succulent composite (*Kleinia*), and it had a very pretty effect, the contrast was so great."

I think we may some day have a tasselled variety of this Fern, for it often shows a disposition to produce them at the points of

the lobes. Perhaps this end might be attained by raising plants from the fronds which show this most distinctly. The plant seems to need nothing more than protection from the frost, and succeeds perfectly in a cool greenhouse.—KARL.

DRINKING FOUNTAIN FOR PLEASURE-GROUNDS OR PARKS, &c.



THIS elegant design for a drinking fountain is composed of a shell supported by aquatic plants. Two have been erected in Nottingham, in connection with the recreation and gymnasium ground established through the munificence of the corporation for the use of the humbler classes of that populous town. A lodge is erected for the residence of the curator, of which a clock-tower forms an important feature. In the deeply-moulded recesses forming the base of this tower the fountains are set, constantly under the surveillance of the official, to prevent waste or damage by the recipients of this excellent provision.

We are aware that the material used is very hard and enduring in its character, and, therefore, most suitable for every description of external decoration, and that for garden ornaments especially its excellence has been fully tested by time as to its durability.

The fountains have been admirably executed by Mr. Fredk. Ransome, of the Patent Siliceous Stone Company, Ipswich, and Cannon Row, from the design of C. H. Edwards, Esq., the architect engaged by the corporation. The price of the stonework is eight guineas.

THE WOOD-LEOPARD MOTH.

(ZEUZERA ÆSCULI.)



Fig. 1.—The female moth, life size, with her ovipositor protruded.

Fig. 2.

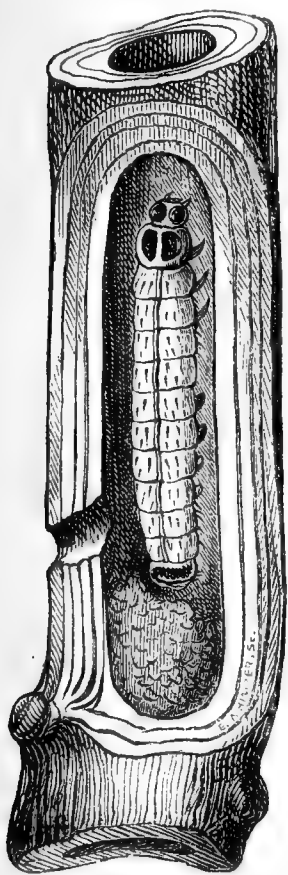


Fig. 2.—The caterpillar within the tunnel it works in the tree. The roundish mass beneath the caterpillar is the woody dust it leaves behind, and of which it forms its cocoon.

Fig. 3.—The skin of the chrysalis.



Fig. 3.

FROM the end of June to the commencement of August, according to the temperature of the season, may be found clinging to trees, especially the Lime, that beautiful insect the Wood-leopard Moth (*Zeuzera aesculi* of some, and *Bombyx* or *Cossus aesculi* of others). Its specific name, from *aesculus*, a Horse-chestnut, is singularly inapplicable, as it frequents that tree less than any other. It is white, covered with bluish-black spots, as represented in our drawing; the antennæ short, tapering to a fine point. The female is fully twice as large as the male, often measuring nearly three inches across the expanded fore-wings. She is also easily distinguished from the male by having her antennæ only woolly at their base, but at the upper part simple; whereas the antennæ of the male are feathered at the base on each side. The thorax is white and woolly, marked by six blue-black spots. She is furnished with a long ovipositor, or egg-depositor, admirably adapted for inserting her eggs in the cracks of the bark of trees, on the wood of which the caterpillar feeds. To the Pear, Apple, Hazel, Walnut, Elm, Lime, and other trees, even the Holly, it is most destructive—burrowing holes into them, destroying their sap vessels, and forming reservoirs for wet to lodge in and promote decay.

The caterpillar is white, tinged with yellow, and spotted with

black; its head being horny, with black patches upon it, and on the segment of the body next to it. Its length is about two inches when full grown. It is hatched in August, and attains its full size in the June following. It then enters the pupa state, becoming a reddish-brown chrysalis, in a cocoon formed of the dust of the wood which, as a caterpillar, it gnawed down in working its passage. From this cocoon, as already stated, the moth comes forth, either at the end of June or some time between that and the beginning of August.

The chrysalis is of a reddish-brown colour, and has a cylindrical longish body, the abdominal segments with transverse rows of small points directed backwards, by which it is enabled to push itself forward to the outlet when ready to assume its imago or moth form. The head of the chrysalis is armed also with a short hard point, by which it opens a way to escape from the cocoon. Our fig. 3, for which, as well as for the other cuts, we are indebted to Mr. Westwood's drawing in the "Gardener's Magazine of Botany," represents a chrysalis-case from which the moth has escaped by a slit down the front part of the upper side, and by the head-piece becoming detached.

This season the ravages of this insect have been unusually severe. Its attacks have not been confined to the Apple, Pear, and Thorn; but even the Holly and other trees have become its prey. In making its attacks it generally perforates a hole on the side of a branch, and eats its way upwards in a perpendicular direction, following the course of the pith; but in a case we have seen exhibited by F. J. Graham, Esq., of Cranford, the insect, instead of taking at once a perpendicular course, ate its way all round a branch, keeping just under the surface of the bark and devouring the wood to such a depth that the limb was weakened and blown off by the wind. After making its horizontal circuit, it then worked its way perpendicularly in the ordinary way.

We have been informed by Messrs. Fraser, of Lea Bridge Road, that the grubs of the Wood Leopard Moth have this season made great havoc among their fruit trees. They perforate a hole about six inches above the ground, and have bored their way up the centre of the stem, in some instances to the height of six feet; forming a perforated tube. In the Horticultural Society's Garden, at Chiswick, it has been detected, as well as in several other places about London.

The way generally recommended for the destruction of this devastator, is to blow tobacco smoke into the holes. This might do very well in cases where the insect is near the orifice, and the burrow is shallow; but in cases where it extends to the length of one, two, or three feet, it will be impossible to reach it by this mode. The only sure course which suggests itself is, to wait till the period in June when the grub has gone into the chrysalis state and its powers of further destructiveness have ceased, and then to plug up the holes. This will either suffocate it, or it will effectually prevent it from emerging, as in the imago state it is incapable of eating its way out. In this way the reproduction of that individual at least would be prevented.

The common house sparrow is a great enemy of this moth; and Mr. Westwood relates, that a few years since it was no uncommon thing, and it may be so annually, to find many wings of this insect at the foot of the trees in St. James's Park, the bodies having been devoured by the sparrows.

CIDER AND APPLE ORCHARDS IN THE OLDEN TIME.

CIDER is now grown, to use a common expression, in great quantities in what is known as the cider country or cider counties. There the great part of the population drink nothing else. Devonshire, parts of Somersetshire, Worcestershire, and Herefordshire, are pre-eminently cider counties.

The early use of a drink called cider, and the production of such immense quantities of that beverage, such as that of 10,000 hogsheads in one parish—viz., Martock in Somersetshire, are two distinct matters.

Cider, without doubt, is of early origin, and is supposed to have been first known in Africa, as it is mentioned by Tertullian and Augustine, the two fathers. St. Jerome speaks of an inebriating liquor made of the juice of Apples.

Biscay, long famed for its cider, received it, as is believed, from the Carthaginians. A full description of this beverage is given by Navagerus, in the journal of his embassy to the Emperor Charles V.

The ancient Britons, like other northern nations, may have

made an intoxicating liquor from the *Sorbus*, or Service Tree; and though hardly from the indigenous Crab Apple; yet some, perhaps, from the better kind of Apples introduced by the Romans. The Anglo-Saxons distinguished their "Eppelwin" from wine and mead.

The Normans, probably, obtained their cider Apple-trees from Biscay; the climate and soil there both favoured their growth. To the abbays of that country we must look for the improvement of Apples and cider-making.

Near Valognes, in the department of La Manche, stood the famous abbey of Montebourg. The possessions of this abbey extended to Dorset and Devon. Besides lands in Axmouth parish in South-east Devon, the manor and church given in the reign of Henry II., there were also other lands, and a priory in Lodres, near Bridport, Dorsetshire.

Cider was made on the Montebourg lands before the year 1286. The monks, who possessed nearly all the knowledge that prevailed at that era, had introduced upon their estates on this side the channel Apple trees, for the growth of Apples for cider-making. They had also taught their tenants how to make cider, according to the approved plan of Normandy, which is still preserved in that part of France, in the Norman islands of Guernsey and Jersey, and in Herefordshire.

W. Villata, of Lodres and Bothenhampton, near Bridport, held land of the Abbot of Montebourg, upon payment of 6s. a-year, and upon his finding a horse (*ad molendum poma*, &c.), to grind the Apples in what is now called a horse-mill.*

The skilful monks may have done much towards the improvement of their estates by the introduction of better fruit trees. Probably others were not disposed to adopt novelties any more than their descendants in the present day.

The Quarantine Apple is supposed to be a corruption of Carentan Apple. Many other names are old names corrupted in the course of years. A perriwinkle shell-fish is termed a *gobbet*. It is the Norman *gobet*, a mouthful, as the famous Cherries of the valley of Montmorency are now called *les bons gobets*.

That cider was made, as before related, in the twelfth century, cannot be denied; but not to any great extent, if we institute a comparison with the great doings now-a-days of cider-making Devon and Somerset.

The Vicar of Dawlish, in the South Hams (now a watering place), received, in 1280, one half the crop of Apples, doubtless grown for making cider.†

The word Orchard, or, as it is now pronounced, Orchat, perhaps a name given by the monks from *Orchatos*, has been a fruitful source of error. It was not in any sense the orchard of modern times. The latter is a space planted with Apple trees of greater or less extent, unlike the practice of Normandy and Brittany, where pasture and arable land are crossed by rows of Apple trees, and where the English practice of planting the trees in one spot with grass under them does not obtain.

The orchard of early reigns was a place laid out with trees, as a pleasure garden for walking, recreation, and sports, having arbours and similar appropriate places. Such a spot, if Apple trees prevailed, was called an Apple garden, or Apple orchard.

An Apple garden is spoken of in "Domesday Book" as existing at Nottingham. Horti and Hortuli are frequent in the same record.

The monks of Lewes Priory, Sussex, had in their enclosure of thirty-two acres and a half within walls, a paradise (park), a garden, and an Apple orchard, which felt the effects of a gale, A.D. 1267.

Some Apples were valued in an orchard in Norfolk, A.D. 1289, 6s. 8d.; the mill, at 9s. The Apple, like the Vine, has been tried in climates and soils quite unsuited to it.

There were ardent lovers of horticulture among the clergy. Upon the extension of a part of Wells Cathedral about the year 1326, there was a special provision made for the careful preservation of a certain Medlar tree. Quinces sold, in 1292, at 4s. the hundred.

Wycliffe knew of the strength of cider, for he translated the passage, Luke i. 15, "He shal be gret biforn the Lord, and he schal not drynke wyne ne sider."

One Cottingham, of Seaford, gave a bond, 26th Elizabeth, that while he should continue a tippler, he and his household should be orderly, and keep no unlawful games nor evil rule within his house, garden, or orchards, during the said time of his tippling,

* The late M. de Gerville, the learned antiquary of Valognes, possessed the cartulary of Montebourg. He communicated this information to the Author in 1841. His death took place in 1853.

† See a Manorial Visitation in the possession of the Rev. George Oliver, D.D.

i. e., dealing in liquor. In the orchard, was doubtless the skittle-alley for summer days.

Butler, in his "Hudibras," gives among other acquirements of Sidrophel that he knew,—

"And in what sign best sider's made."

So that in the reign of Charles II., not only was attention paid to the growth of the Apple, but to the making of this fruit into cider—an operation of importance enough to be referred to an astrologer, then a common practice.

Apple trees and Pear trees also began to be much cultivated about the middle of the 17th century. In a pamphlet addressed to the well-known Samuel Hartlib, Esq., A.D. 1657, entitled "Herefordshire Orchards, a Pattern for all England," it is asserted that gennet-moyles bear every other year, and make the best cider. Mordicant, or sharp cider, pleased the peasant or working man, as was the case in France.

In Herefordshire few cottagers, and even few of the wealthiest yeomen, taste any other drink in the family but cider, except at some special festivals twice or thrice in a year, and that for variety rather than for choice.

The credit of cider had of late years much advanced in the estimation of the best gentry, who had sought out the right method of ripening and hoarding the choicest fruits, and some also of bottling it.

"But I am confident," the writer adds, "that much more may be added to the perfection of it, when they shall also apply to it the due subtleties of the mysterious art of fermentation."*

Each cultivator bestowed greater attention, having proved that—

"Else false hopes
He cherishes, nor will his fruit expect
Th' autumnal season but in summer's pride,
When other orchards smile abortive fail."

PHILIPS, *Cider*, book i.

Wassailing the orchards on New Year's Eve is called, in Sussex and those parts, "Apple Howling," from the words used:—

"Stand fast, root; bear well, top;
Pray the God send us a good howling crop, &c."

Hence the entries in former centuries of money given to the "howling boys" may be understood.

Hooker, in his MS. survey, records that the Apple was cultivated in Devonshire so early as 1520. He must mean begun to be grown for the purposes of cider. He continues, "but in the beginning of the following century it received more attention."

So long as the narrow lanes served to keep up the communication between the principal towns, and pack-horses did all the work, there being no carts, how could cider in hogsheads have been sent about the country? It could not have been sent to any great distance.

The absence of the mention of cider up to a certain period in borough archives is very remarkable. In accounts, where every halfpenny is carefully set down; in dinners of the most homely kind, and feasts, such as the Cobb Ale at Lyme, and the feast at Ford House; in a dinner to Charles I., altogether (for the country) very sumptuous up to this period referred to, and which required to be specified, there is no mention of cider; then cider takes its place with ale and beer, and furnishes an item in every account for refreshment or festive enjoyment at table of the inhabitants of boroughs.

In the detailed presentments of the Hustings' Book for Lyme for the year 1597, of the stealers of wood and pollers of trees for fuel, appears this entry:—

Item, they present George Browne's son, Hoode's son, and Thomas Sampford's boy to break into men's orchards and steal Apples.

Whether these were Apples for the table or for cider matters little, after what has been written above, as no cider is mentioned in the archives for 110 years.

In 1629, Apples were cultivated in Massachusetts from seed imported from England by order of the Governor and company of the colony. Governor's Island, in Boston harbour, was given to Governor Winthrop, in 1632, on condition that he should plant an orchard upon it.

A hogshead of Somersetshire cider was brought to Mr. Richards, near Dorchester, A.D. 1699, upon the occasion of England and Scotland being united into one kingdom; a hogshead

* The late eccentric A. Cross, Esq., of Broomfield, near Taunton, famous for his experiments in electricity and galvanism, believed he should be able to master fermentation in cider. He did not succeed.

of cider was given by the corporation of Lyme to the soldiers at a cost of 25s.

Wine, beer, and cider were given away at Minchinhampton upon the accession of King George in 1714.

In 1745-6, the account of Robert Henley, Esq., Mayor of Lyme, exhibits:—

April 28. Two hogsheads of cider supplied for the populace on the association (to support his majesty George II.), and on the victory obtained over the rebels, £2.

The Mayor purchased this cider at Pinney Farm, of Walter Oke, a country gentleman, who farmed his own land, and had planted some of the now far-famed Cleaveland, late Pinney-under-Cliff, with Apple trees.

The farmers of the Somersetshire parishes near Sedgemoor, so soon as they heard that the king's forces had won the battle and defeated the Monmouth men, sent hogsheads of cider to the victors. The price of a hogshead of cider given away at Axminster in 1689 was 17s. 6d.

The excellence of the cider made throughout the breadth of the cider-growing West is very great; the quantity is enormous. Some localities which have a good name for their cider send out much more cider than is produced therein, like in wine countries, so much does man resemble man in all countries and ages. The growers in the localities in question buy Norman Apples at a cheap rate, and mix them with their own fruit.

Some gentlemen, travelling from Strasbourg to Freyburg, stopped at the village of Altenheim, in Baden, at an inn kept by a respectable man who farmed his own estate of 100 acres. Perceiving how loaded the trees of this orchard were, the English gentlemen spoke of the great crop of Apples and of cider. The German informed them that no cider was made in that country; the juice was mixed with the juice of Grapes, and made into wine!

In 1854, some growers of cider in Devon and Somerset make much more than a thousand hogsheads in one year when the crop is good.—(*Roberts's Social History of the Southern Counties.*)

CONSERVATORY ON A NORTH ASPECT.

My house faces the north. On one side of the hall-door is the drawing-room, 19 feet by 18 feet; on the other side the library, 18 feet by 16 feet. I am anxious to erect a small conservatory which might open into either of these rooms. If it opens into the drawing-room it would run towards the east, but if it opens into the library it would run towards the west. Which do you prefer? I merely want it to keep Geraniums. Do you think that 15 feet long and 10 feet wide would be in proportion? I could not make it more than 10 feet wide.—A SUBSCRIBER FROM THE FIRST.

[If there is no shade, nor any other thing objectionable, we should prefer the east side, as securing the morning sun, and avoiding the stronger rays in the afternoon. The size will do very well. But if in either case the glass slopes to the north, you cannot expect plants to grow well, though they will keep a long time in bloom. If the spaces respectively at the ends of the library and drawing-room are open, then your house, if a lean-to, may face the south; or if a high north wall were objectionable, you might have a span, or a hipped roof. In either case, the east side, other things being equal, would be the best.]

BRITISH POMOLOGICAL SOCIETY.

A MEETING of the British Pomological Society was held at the Hanover Square Rooms on Thursday the 2nd inst. Robert Hogg, Esq., Vice-President, in the chair.

The following gentlemen were elected members:—

ALFRED SMEE, Esq., M.D., F.R.S., Bank of England.

Mr. JAMES F. ROBINSON, Frodsham, Cheshire.

Mr. W. PRIDHAM, Montacute Gardens, South Petherton.

Mr. SHIRLEY HIBBERD, Stoke Newington.

Mr. THOMAS FOSTER, Benningbrough Hall, York.

At this Meeting prizes of *Two Guineas* and *One Guinea* were awarded for the best collection of six varieties of Dessert Pears, three of each. The first prize was taken by Josiah Moorman, Esq., of Clapham, for *Old Colmar*, *Winter Nelis*, *Ne Plus Meuris*, *Glow Morceau*, *Easter Beurré*, *Jean de Witte*. The second prize was taken by Mr. Ingram, gardener to J. J. Blandy, Esq., of Reading, with *Knight's Monarch*, *Winter Nelis*, *Ne Plus Meuris*, *Glow Morceau*, *Easter Beurré*, and *Beurré d'Arenberg*.

Prizes of *One Guinea* for the best, and *Half a Guinea* for the

second best Kitchen Apples, were also awarded. These remained over from the previous Meeting to afford an opportunity for having the different varieties cooked: and after examination of a great number of sorts, the first prize was taken by Mr. Saltmarsh, of Chelmsford, with *Bess Pool*; and the second by Mr. Cameron, of Goodwood, with *Blenheim Pippin*.

Mr. Newton, of Enfield Chase, exhibited a very fine variety of Rhubarb, admirably adapted for forcing. The stalks were about a foot long and upwards of an inch broad; of a fine, deep, blood-red colour, and were highly commended.

Mr. Spary, of the Queen's Graperies, Brighton, exhibited his sulphurator for the prevention and cure of the Vine disease in vineries. It consists of an iron cylinder, about eighteen inches high and six inches in diameter, into the top of which an iron vessel or pan is inserted: this pan contains the sulphur composition. At the bottom of the cylinder is a small door through which a lamp is introduced, the flame of which heats the sulphur composition above; and the fumes that are evolved have been found by Mr. Spary effectually to prevent the attacks of mildew and other diseases. Considerable discussion arose on the point whether the sulphur composition might not become ignited, and the result might be the total destruction of the plants contained in the house submitted to fumigation. Mr. Spary stated that with careful management this would not be the case. The Meeting then adjourned.

TO CORRESPONDENTS.

DOUBLE PRIMROSES (*A., West Essex*).—The double white, double dark, and very dark Primroses, are extremely dainty in their choice of soil. Where it suits them they do just as well as the double lilac ones; but we may make for them ten kinds of imitation soil from composts, and still be beaten. Try them in pots in Pelargonium compost, but more sand—say turfy yellow loam, as that in Epping Forest, very rotten dung, and about a sixth part of any gritty sand; use No. 32-pots, and keep the pots plunged in a sheltered west aspect from the end of September till they come nearly into bloom; then take them to where you want them to be seen; and when they have done flowering, plunge the pots in a north aspect, and keep the place damp about them in hot weather. It is the red spider that kills them. Early in March is the only time to increase them by parting the roots. We shall shortly treat of them in full.

WALTONIAN CASE (*The Glen*).—We sent your letter to Mr. West, the manufacturer of the Waltonian Case. You want more heating power, that is all. The candle was a failure, as we foretold; but other experiments, we hear, are in progress.

PATCHOULI (*Clericus*).—Your plant No. 1 is *Disandra prostrata*, trailing Disandra. No. 2 is probably *Pogostemon patchouli*; but that species is so like to *P. plectranthoides*, that we cannot be certain from the specimen sent to us. If it be *P. patchouli*, it produces the well-known Indian scent Patchouli, or Pucha-pat. Specimens of the scent and of the living plants are in the museum and stoves at Kew Gardens. Professor Tenore called the plant *Pogostemon suavis*. The Arabs dry the leaves, and stuff pillows and mattresses with them, believing that they prevent contagion and prolong life; a belief which attaches among the ignorant to Sage and other odoriferous plants. As a scent Patchouli is used by perfumers chiefly for mixing with other aromatics. *Sachets de Patchouli* are made of cotton-wool, among which a few grains of the powdered Patchouli leaves are mixed, and folded in paper. Placed among clothes they are said to drive away moths, &c. In Hindostan Patchouli is used by the women for scenting their hair, and it is also mixed with tobacco for the hookah. In this country the Patchouli leaves, it is said, will retain their scent if dried in the dark by being placed singly in a drawer, and turned daily for a fortnight.

COWS AND PIGS (*W. Wilson*).—Two of "Richardson's Rural Hand-books" treat of these animals.

CERASTIUM TOMENTOSUM—VARIEGATED ALYSSUM—CRIMSON VERBENAS (*A Four Years' Subscriber*).—It is the true *Cerastium tomentosum* and the "sprigs" were large enough for the kind of cuttings that should be made of it soon, and treated like Verbena cuttings. The variegated Alyssum will not come variegated from seeds any more than any other variegated plant. It would come from seeds just the same as the common Sweet Alyssum. When it first appeared as a sport from the Sweet Alyssum the best botanists were not aware that variegated sports concealed their origin in the difference of their leaf and style of growth from the plants whence they originated—as, for instance, *Brilliant*. No one could guess that *Brilliant* was a sport from *Tom Thumb* until *Tom* came up again as a sport from a shoot of *Brilliant*; and no botanist could then guess that the variegated Alyssum was an Alyssum at all, and one of them committed himself so far as to make a new genus of it, and called it *Koniga maritima*. The Cerastium is the nearest and best substitute for the variegated Alyssum; but they are both best. One of the best dark crimson Verbenas is decidedly *Géant des Batailles*. There is no pale crimson Verbena; you must choose a crimson-scarlet instead. *Sims Reeves* or *Sir Joseph Paxton* would give you the rise from *Géant des Batailles*; and *Standard Bearer* or *Syren* are the nearest to your next colour, but they are bluish-purple.

LANTANAS.—"ROSE" will find a reply to her inquiry respecting Cannas in another of our pages. The subject has received little notice hitherto, and, therefore, the reply is rather full. The inquiry as to Lantanas is rather vague—"Any information would be acceptable." If "ROSE" would be more definite, so would be our answer. However, in a week or two we will say somewhat respecting Lantanas, as plants for cool stoves, for green-houses, and for bedding out at the end of May.

LIQUID MANURE BARROW (S. B.).—We employ a twenty-gallon cask swung on axes inside the frame of a common wheelbarrow. The manure may be drawn off by a tap of one-and-a-half-inch bore.

MOSS ON FRUIT TREES (W. I.).—Scrape the Moss from the stems and branches of your fruit trees; remove also the layers of old hardened bark, and then wash with a mixture of lime and soot in equal proportions made to the consistence of paint.

REPOTING ORCHIDS (M. R.).—Cut away the old stems. Mr. Williams's book on Orchids is good and cheap. If you had our 5th and 6th Volumes, you would see there what Mr. Appleby has written on the culture of the various species.

ELM TREES PIERCED BY HOLES (W. B., Chelmsford).—We have little doubt but that "the holes bored into the heart about the size of a rifle-ball," are made by the grubs of the Wood-leopard Moth, an insect described and figured in our present number.

EXCLUDING FROST (F. D. L.).—You do not say of what your fruit-loft is constructed; but even if we knew, so much depends upon doors, windows, and exposure, that we could not say whether one batwing gas-burner would exclude frost from it. We should think two would be required, one near each end. Why not try to what temperature one will keep the loft during these frosty nights?

PRUNING PEAR-TREE SHOOT (Idem).—You may prune them now. Cut away one-third of the length of the strong shoots, and two-thirds of the length of the weak.

PRICE OF THE COTTAGE GARDENER (J. D.).—For fifty-two weeks your newspaper-agent ought to charge 17s. 4d.—that is, if it is sent to you free by post.

NAMES OF APPLE AND PLANTS (Norbeton).—Your Apple is *Lincolnshire Holland Pippin*. The flowering plant is *Stevia*, and we believe *S. glutinosa*. The Fern is *Platycerium alcicorne*, or Stag's Horn Fern. The climbing plant, *Senecio Mikania*.

NAMES OF PLANTS (A Subscriber).—One Orchid is *Zygopetalum Mackaii*; the other looks like a *Cymbidium*, but was too much injured for us to be certain. (A. C.).—It is not a *Spergula*, but *Sagina procumbens*, or Pearlwort.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

FEBRUARY 11th to 15th, 1860. CRYSTAL PALACE (Poultry and Pigeons). Sec., Mr. W. Houghton. Entries close Jan. 14th.
FEBRUARY 29th, and MARCH 1st, 1860. ULVERSTONE. Sec., Mr. T. Robson. Entries close February 11th.
MARCH 15th, 16th, and 17th. CUMBERLAND AND WESTMORELAND. Hon. Secs., Mr. J. J. Lonsdale, and Mr. W. D. Hastwell.
MAY 23d and 24th. BEVERLEY AND EAST RIDING OF YORKSHIRE. Sec., Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.
JULY 18th and 19th. MERTHYR TYDVIL. Sec., Mr. W. H. Harris, 142, High Street, Merthyr.

KEEPING POULTRY FOR PROFIT.

FIRST. Would keeping fowls near London on a large scale—say a stock of five hundred to one thousand, be sufficiently remunerative to yield me a moderate income by the produce of eggs, &c.?

Second. What quantity of ground would be necessary as a run for such a number of fowls?

Third. What would be the average cost of the food for such a number, calculating the food being purchased in bulk, and at the cheapest market?

Fourth. What season of the year would you consider best to commence with them?

I have had the above in contemplation for some time, and being now in a position to devote the whole of my time to the carrying out of the scheme, I should like to have your opinion upon the matter. I may also state that I am prepared not to realise any profit for the first year, making allowance for the many drawbacks on first starting.—A RECENT SUBSCRIBER.

[The answer to your queries will resolve itself into a poultry article, and we will endeavour to frame our opinions so that they shall answer your questions as they occur.

There is no such thing as keeping a thousand fowls healthy or profitably on one spot. It is against their nature to be put together in large numbers. But no one with a small property or holding would think of keeping such a number. The plan may be easily carried out by dividing the thousand birds into ten lots, and making each lot as distant as possible from the other. As the difficulty of the experiment would be very much enhanced by keeping a thousand, we should advise that not more than four hundred be kept at the outset, and that these form establishments, each having one hundred fowls.

Although both eggs and fowls may enter into calculation, yet precedence must be given to one or the other; and in every case, when poultry is intended to be something more than a recreation, and to pay as an investment, it is necessary to know something of the neighbourhood, its wants, and its markets. In some places eggs are most wanted, in others fowls. The knowledge of these things must dictate the breed that is to be kept. The produce of birds may be considered as a certainty,

if they are properly chosen and judiciously fed; but almost every breed has some peculiar characteristic. Thus, if the establishment were in a neighbourhood where an egg is an egg, and all that is required is a certain number in exchange for a shilling, Hamburgs or Cochins would be the proper birds, especially the former, as they are small consumers of food. If it were a neighbourhood where ladies marketed, and where things are carefully looked at and studied before they are bought; where, after asking the price they promise to call again, and intend to do so, we should keep Spanish, as the size of their eggs would always command a sale in preference to any others. If fowls were wanted for the table, and good ones were sufficiently appreciated to cause buyers to give a little more for a better bird there, we say keep Dorkings as table fowls. These explanations must, of necessity, lack interest for the general reader; but they are essential to be considered by those who are looking for profit from their poultry.

We will suppose it is only required to produce eggs. Cochins, Brahmas, or Spanish, will do in a small space, and a hundred of either may be kept on an acre of ground. But as neither breed nor age will produce eggs from unhealthy birds, it will be necessary to take every pains to keep them in a satisfactory state. The three breeds we have named bear confinement well, but it will happen that they flag a little at time. Any precaution is then worth adopting. Let us suppose one hundred hens on an acre of ground: it would be well to divide them into four sets, each with a different run, and, above all, a different roosting-place. More than half the disease is got by roosting too closely in small buildings. Most diseases are contagious or infectious, and for this reason the division into four parts offers security which should not be neglected. It will be necessary every year to have young birds, and these must be bred on the premises. Two acres would require to be set apart as rearing-ground for chickens. Houses, yards, &c., would occupy half an acre. Four hundred hens might be kept then on six acres and a half in good laying condition. They would have to pay their expenses by their eggs; but as it would be necessary to breed many, and as we advise beginning with pure birds, we believe that every year some chickens might and would be selected which, at exhibitions or by private sale, would make prices that might prove very remunerative. We have here put the smallest possible space on which we think the birds could be kept, and they would unquestionably do better if they had more room.

The present would be a good time to begin, because arrangements could now be made for breeding the stock that would be wanted in the winter. Spite of all we may write and you may read, there is much you may learn by practice and experience, and you cannot do better than gain these while breeding your stock on a small scale.

It will be very difficult to name the quantity of food they will consume; but it should be carefully seen to, and none wasted. In nineteen out of twenty of the yards where fowls are kept on a large scale, half the food is wasted, and another portion is uselessly expended in trying to make the fowls eat more than they require. The supply of eggs must be kept up during the year, as the largest profit will be made when fewest eggs are laid. Really new laid eggs in the winter will make threepence or fourpence each for weeks, and for a long time they will make a penny each. This last is a remunerating price. We believe it is possible, if not easy, to make fowls pay by eggs, but only where there is personal superintendence. We will return to the subject.]

CRYSTAL PALACE POULTRY SHOW.

VAUXHALL has passed away. Its dark mysterious walks, its hermitage, its fire-king, its fireworks, its concerts, its sandwiches, its indescribable wine could no more save it when its hour was come, than could the mellifluous notes which had issued from the throat of Lady Throckmorton's favourite Bullfinch save that celebrated songster from its ruthless foe. Some say, "Time devours all things;" and we have seen a caricature where he is represented just bolting the fag end of the Monument, while St. Paul's is dished up to follow. Cognoscenti in such matters may say that the latter would only appear as a *pièce montée* on the table; but the great devourer would eat all. He is what Katherine described Wolsey to be, of an "unbounded stomach."

Being no longer young, we cannot help thinking the present times very inferior to those of the earlier part of the century. Perhaps some remain who recollect the celebrated Simpson. The

graceful way in which the hat was raised from the head with the right hand, while the left held an ebony cane with golden knob. This was raised some inches from the ground, and poised between the thumb and finger. The bald head, the black coat, the white waistcoat—one inch and a half below the coat, the tights tied in bows above the ankle, the right foot firmly planted *à plomb*, while the left was thrown gracefully back, and rested on the toe of the shoe. “Welcome, Sir, to the royal property,” to a friend (aside) “10,000 additional lamps.” This brings us up. The Crystal Palace has taken the place of Vauxhall, and every such establishment, so far as good had to do with them. It appeals to all classes, by catering for all tastes. As the probability is, that seven members of one family will have seven pursuits, so this is the only place we know where all can be gratified. We have to do with the Poultry Show. Just as “feu” Simpson said, 10,000 additional lamps, we say a hundred and fifty additional pens. Come, say we, to all lovers of the pursuit—to all who love natural hobbies—come and see 126 pens of Spanish, 164 Dorkings, 97 Cochins, 32 Brahmas, 185 Game, 157 Hamburgs, 88 Bantams, 151 Varieties, and 300 Pigeons. We promise you a treat, and we ask all to support this our London Show, and this company which does so much for all classes.

CHESTERFIELD POULTRY EXHIBITION.

THE third annual meeting of this Society took place on Tuesday, Wednesday, and Thursday last, and far outstripped either of the preceding ones. More than four hundred pens of excellent poultry competed for the premiums offered, and the competition in almost every class was of the highest order. The Chesterfield Market Hall is peculiarly well adapted for the purposes of a Poultry Show—the light being excellent, all draughts of cold air perfectly excluded, although at the same time the ventilation is complete. These advantages, combined with the willing patronage of the leading families in the neighbourhood and the personal exertions of a most enthusiastic Committee, have a strong tendency to raise the Chesterfield Show to a far higher position than most among our local meetings. The fowls were shown in the pens manufactured by Mr. Turner, of Sheffield; and a cleaner or better-ordered exhibition-room it is needless to wish for. The poultry generally appeared to be in excellent condition; but we were sorry to notice a pen or two where “roup” prevailed, and which the Committee very wisely ordered to be removed.

On our first entrance the adult *Spanish* fowls took precedence. They certainly did not reach our expectations, being scarcely recovered from their moult. It is certain that at no former period has the extraordinarily variable character of the weather so much affected Spanish fowls as of late, nor does any variety suffer so severely (if highly bred), under the severity of sudden chills. Our own impression is, the second-prize birds, if well attended to, will, in a month or so, be far superior to their present appearance. It will be seen that in chickens the celebrated stock of Mr. Rodbard made a wholesale clearance of the Society's prizes: they were exhibited most creditably. In the old *Dorking* class the first-prize pen contained two hens of the highest character (Silver Greys), but we confess the cock was not much to our fancy. In the *Dorking* chickens, on the contrary, the cockerel in the first-prize pen promises, with careful attention, to speedily become a bird of whose exhibition-exploits we must hear again. The *Cochins* (all colours competing together), were very good. Mr. Dawson's pen being excellent; very closely pressed, however, by Mr. Harvey, of Sheffield, the latter gentleman taking both prizes for chickens—a good proof of the excellence of the stock from which they were descended. Among the Partridge and Grouse-coloured birds not a single pen could be selected in which the combs were perfect. It is really singular that of late this defect seems all but universal, although a fatal objection. In *Game* fowls the Chesterfield Show will, in point of quality, rank “cheek by jowl” with the most influential of our poultry meetings; for, as was triumphantly asked within our hearing in the room by an old cocker, “What can beat 'em, Sir?” We readily admit, as a whole, they certainly have never been far surpassed. To make close mention of the Game, then, would be far beyond the limits of our paper; but we cannot refrain from briefly alluding to the courtesy of Captain Hornby, of Prescott Cottage, who kindly volunteered the privilege of exhibition of his celebrated Game cock to the Chesterfield Committee, without any hope of premium or reward of any kind, as not competing. This model standard of a Game cock is a Black-breasted Red—a bird scarcely leaving a point open for improvement, even among

those who might sedulously endeavour to “find a fault.” It was stated on a printed placard to have won for its owner, within its limited lifetime, upwards of £200 in money and cups from exhibition only. This excellent specimen seemed quite at home among all the turmoil of an exhibition-room, and was truly one of the chief gems of the Show. In *Hamburgs* the Show stood very highly, the Golden-spangled being of unusual beauty. The Silver-spangled were but little inferior to the last-named variety; and the “Redcaps” were a Yorkshireman's perfection. The *Polands*, though not very numerous, were far better than we have seen for years: as a whole all kinds were well exhibited. In the *Variety* class were wonderfully good Brahmas, Malays, Sultan Fowls, Black Hamburgs; and, though not able to take premiums as “poultry,” a pen of the most remarkable hybrids between the common English Pheasant and Golden-laced Sebright hen that we ever remember seeing. They were rising two years old, had always previously had unrestrained liberty, and, excepting an accident (by the owner in the catching) of pulling the tail-feathers of the larger bird, they were in first-rate feather. The carriage of these pair was a much closer approximation than we ever before saw to that of a Bantam; and, strangely enough, the rudiments of a comb were in both cases slightly developed. They were lighter coloured and more perfect in feather than common with hybrids thus bred. One of the best classes in the Show was the *Game Bantam* Single Cock class, all our most noted breeders competing. They were well worthy of a long journey to any one fond of inspecting perfect specimens; we never saw any class of these beautiful pets throughout so good. The Black and the White Bantams also were very superior.

All the varieties of *Ducks*, the *Geese*, *Turkeys*, and *Pigeons* stood quite well with the generality of poultry exhibitions; and the *Rabbits*, by those who take most interest in them, were greatly approved.

Luckily for the receipts the weather was favourable; and we were happy to find numbers of our principal poultry fanciers journeying long distances to Chesterfield, and expressing great satisfaction.

SPANISH.—First, W. Silvester, 16, Market Hall, Sheffield. Second, C. F. Nelson, Newhall-street Birmingham. **CHICKENS.**—First and Second, J. R. Rodbard, Aldwick Court, Wrington, near Bristol. Highly Commended, T. P. Wood, jun., Chesterfield. Commended, W. Boulter, Sheffield.

DORKINGS.—First, T. P. Wood, jun., Chesterfield. Second, Mrs. W. Arkwright, Spondon, near Derby. **CHICKENS.**—First, J. Hitchman, M.D., Mickleover, near Derby. Second, Dr. J. D. Hewson, Coton Hill, Stafford. Highly Commended, J. Bennett, Duckmanton.

COCHIN-CHINAS.—First, W. Dawson, Hopton Mirfield, Yorkshire. Second, W. Harvey, Bank Street, Sheffield. Highly Commended, J. Stayley, Collingham. Commended, W. Harvey, Bank Street, Sheffield. **CHICKENS.**—First and Second, W. Harvey, Bank Street, Sheffield. Highly Commended, J. Stayley, Collingham, Newark.

GAME (Black-breasted and other Reds).—First, J. Jackson, Firbeck, Whitwell. Second and Third, G. Hellewell, Walkley, Sheffield. Commended, A. Cottam, Easthorpe, Southwell. **CHICKENS.**—First, T. Owen, Barlow. Second and Third, G. Hellewell, Walkley, Sheffield. Highly Commended, J. Lingard, Chesterfield; Master W. M. Evinson, Chesterfield. Commended, J. Jackson, Firbeck, Whitwell; G. Lingard, jun., 67, Snow Hill, Birmingham; Commended, J. Camm, Farnsfield.

GAME (Duckwings and other Greys and Blues).—First, G. Boot, Chesterfield. Second, J. Hoyland, Chesterfield. Third, G. Robinson, Thorpe Salvin, Worksop. Highly Commended, R. S. Kinder, Darley Dale. Commended, J. G. Cottingham, Hardwick Hall. **CHICKENS.**—First, J. Bradwell, Southwell. Second, G. Boot, Chesterfield. Third, G. Hellewell, Walkley, Sheffield. Highly Commended, R. Swift, Southwell.

GAME (Whites and Piles).—First, J. G. Cottingham, Hardwick Hall. Second, G. Robinson, Thorpe Salvin, Worksop. Third, W. Evis, Whitwell. Commended, G. W. Ball, Blackwell, near Alfreton. **CHICKENS.**—First, J. Camm, Farnsfield, Southwell. Second, G. W. Ball, Blackwell, near Alfreton. Third, G. Robinson, Thorpe Salvin, near Worksop. Commended, G. W. Ball.

HAMBURGS (Golden-pencilled).—First, J. Dixon, Bradford. Second, Messrs. Bird and Beldon, Bradford. Commended, G. Daft, Southwell; C. Hayes, jun., Walkley, Sheffield. **CHICKENS.**—First, J. Dixon, Bradford. Second, W. Froggatt, Sheffield. Commended, G. Daft, Southwell.

HAMBURGS (Golden-spangled).—First, T. Birks, Cornhill, Sheffield. Second, G. Daft, Southwell. Highly Commended, J. Dixon, Bradford.

HAMBURGS (Silver-pencilled).—First, J. P. Jones, Handsworth Sheffield. Second, J. Dixon, Bradford. **CHICKENS.**—First, H. Marshall, Cotgrave, Notts. Second, F. Carrington, Beeston, Notts. Highly Commended, J. Dixon, Bradford; G. Daft, Southwell; F. Carrington.

HAMBURGS (Silver-spangled).—First, J. Camm, Farnsfield, Notts. Second, E. Needham, Ridgway, near Chesterfield. Highly Commended, J. Dixon, Bradford; G. Daft, Southwell. **CHICKENS.**—First, J. Dixon, Bradford. Second, W. Harvey, Bank Street, Sheffield. Highly Commended, Messrs. Bird and Beldon, Bradford; J. Bell, Thirsk, Yorkshire.

POLANDS.—First, J. Dixon, Bradford. Second, Mrs. Robinson, Mansfield Wood House, Mansfield. Highly Commended, G. Ray, Minstead, Hants; J. Dixon, Bradford; W. Dawson, Hopton Mirfield.

REDCAPS.—First, J. Hollins, Owlerton, Sheffield. Second, B. Oates, Owlerton, Sheffield.

ANY OTHER DISTINCT VARIETY.—First, W. Harvey, Bank Street, Sheffield. Second, W. Dawson, Hopton, Mirfield. Highly Commended, Messrs. Bird & Beldon, Bradford; E. Bower, Chesterfield; W. Harvey; F. Thorpe, Dronfield; Mrs. Robinson, Mansfield Wood House, Mansfield.

BARN DOOR FOWLS.—First and Second prizes withheld.
BEST GAME COCK (Black or Brown Reds).—First and Third (Silver Cup), J. Jackson, Firbeck. Second, J. Fletcher, Manchester. Very Highly Commended, G. D. Jarvis, Tickhill; W. H. Wordsworth, Chesterfield. Highly Commended, G. Hellewell, Sheffield; J. Lingard, Chesterfield; W. Jepson, Edensor; J. Brentnall, Belper; C. Rollinson, Chesterfield. Commended, J. Lowcock, Dronfield.

BEST GAME COCK (any age or colour (except Black or Brown Reds).—First (Silver Cup), T. Owen, Barlow. Second, G. Robinson, Thorpe Salvin. Third, J. Fletcher, Manchester. Highly Commended, J. Jackson, Firbeck; J. Ewen, Tupton; W. Haslam, Hardstaff; Master W. M. Evinson, Chesterfield; A. Cottam, Southwell. Commended, M. Oates, Duckmanton; F. Thorpe, Dronfield.

BANTAMS (Gold and Silver-laced).—First, T. H. D. Bayley, Biggleswade. Second, Rev. J. Bowden, Thurgoland. Highly Commended, W. Harvey, Sheffield; Master W. M. Evinson, Chesterfield. Commended, W. H. Chaffey, Hull.

BANTAMS (Black).—First, G. Hellewell, Sheffield. Second, — Hutton, Fulneck, near Leeds. Highly Commended, J. W. George, Beeston Podge.

BANTAMS (White).—First, Miss S. Perkins, Sutton Coldfield. Second and Highly Commended, G. Hellewell, Sheffield.

BANTAMS (any other variety).—First, W. Silvester, Sheffield. Second, G. Hellewell, Sheffield. Highly Commended, T. H. D. Bayley, Biggleswade; W. Harvey, Sheffield. Commended, J. Hutchinson, Stanesby.

DUCKS (White Aylesbury).—First, J. W. George, Beeston Podge. Second, J. Camm, Farnsfield. Highly Commended, J. Dixon, Bradford. Commended, Messrs. Furniss, Bakewell.

DUCKS (any other variety).—First, H. Marshall, Cotgrave. Second, Miss S. Perkins, Sutton Coldfield. Highly Commended, J. Dixon, Bradford; Miss E. Perkins, Sutton Coldfield.

GESE.—First, J. Daft, Southwell. Second, Messrs. Furniss, Bakewell.

TURKEYS.—First, J. T. Lowe, Tapton. Second, Messrs. Furniss, Bakewell. Highly Commended, G. Daft, Southwell; E. Holland, Grasshill.

SWEETSTAKES FOR GAME BANTAM COCKS.—First, R. Hawksley, jun., Southwell. Second, T. H. D. Bayley, Biggleswade. Third, W. Mason, Chesterfield. Highly Commended, J. Camm, Farnsfield; T. H. D. Bayley; R. Hawksley, jun.; W. Mason, Chesterfield. Commended, J. Newton, Chesterfield.

PIGEONS.—*Carriers.*—First, H. Childs, jun., Birmingham. Second, R. J. Wood, Nottingham. Highly Commended, T. T. Parker, Adlington Hall, Lancashire. Commended, J. Deakin, 114, Green-lane, Sheffield. (Good class.) *Almond Tumblers.*—First, J. Percival, Clent Villa, Horborne, near Birmingham. Second withheld. *Owls.*—First, E. Holland, Grasshill, Chesterfield. Second, J. C. Brierley, Gedling, Notts. Commended, J. Simpson, Barlow. *Jacobins.*—First, Mrs. Taylor, Hampden View, Sheffield. Second, W. H. Hewitt, jun., Forest Hill, Kent. (A good class.)

Antwerps.—First, J. W. Edge, Birmingham. Second withheld (entered in the wrong class). *Pouters or Croppers.*—First, H. Childs, jun., Birmingham. Second withheld. *Fantails.*—First, J. C. Brierley, Gedling, Notts. Second, J. W. Edge, Birmingham. Highly Commended, H. Childs, jun., Birmingham. (A very good class.) *Balds, Beards, or Mottled Tumblers.*—First, J. W. Edge, Birmingham. Second, J. Heaton, Staveley. *Dragoons.*—First, H. Childs, jun., Birmingham. Second, J. W. Edge, Birmingham.

Any other Variety.—First, E. Holland, Grasshill, Chesterfield. Second, H. Childs, jun., Birmingham. Highly Commended, J. W. Edge, Birmingham. (A very good class.)

RABBITS (Single Specimen).—*For length of Ears.*—First, W. Hudson, Chesterfield. Second, Miss Carrington, Chesterfield. *For best Coloured.*—First, E. Holland, Chesterfield. Second, B. Gale, Broomhall, Sheffield. *For best Weight.*—First, R. Statham, Chesterfield. Second, B. Gale, Broomhall, Sheffield.

BUFF AND PARTRIDGE-COLOURED COCHIN CHINAS.

SEVERAL breeders of Buff Cochins desirous of having a sweepstakes at the Birmingham Show similar to the one for Partridge-coloured birds, have put down their names, subject to the same regulations. Mr. Chas. Felton, Erdington, near Birmingham, having again consented to act as Secretary, will be glad to receive the names of those intending to join either; and to give any information required.

NANTWICH POULTRY SHOW.

THIS took place on the 4th inst., but we have only time and space to state, that the Silver Cups for the best *Game Cockerels* and *Game Cock* were taken by Mr. T. Stringer, and Mr. T. Latham. The prizes were awarded—in *Spanish*, to Messrs. W. Woolley, D. Harding, T. Trevitt, and Mrs. E. Broughton; in *White Dorkings*, to Messrs. S. Davies and T. Wood; in *Coloured Dorkings*, to Mr. T. Burgess, Mrs. Broughton, and Mrs. Tolle-mache; in *Cochin-Chinas*, to Messrs. W. Forster, J. Dutton, G. Williamson, and J. Dodd; in *Hamburghs*, to Messrs. D. Harding, W. Griffiths, T. Burgess, W. Wettenhall, and T. Dale; in *Polands*, to Messrs. T. Sproston, T. Burgess, and J. Heath; in *Game*, to Messrs. E. Bower, J. Bellyse, T. Burgess, W. Bott, T. Stringer, J. Parton, and H. Cawley; in *Bantams*, to Messrs. T. Burgess and D. Harding.

IN SINGLE COCKS.—*Spanish*, T. Wakefield; *Dorking*, T. Green and T. Burgess; *Cochin-China*, E. Tudman and J. Dodd; *Hamburghs*, T. Dale and W. Forster; *Polands*, J. Brownword; *Game*, T. Hope, T. Hollowood, T. Burgess, and J. Wilkinson; *Bantams*, T. Burgess.

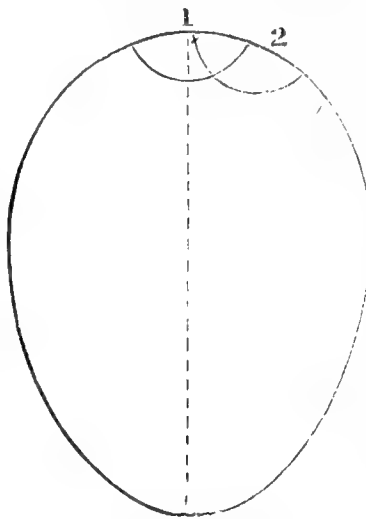
In *Turkeys*, Mrs. H. Akroyd and Mrs. Tomkinson; in *Geese*, Miss E. Teasdale and Mr. W. Furnival; in *Ducks*, Messrs. E. Viggor, W. H. Hornby, T. Burgess, Capt. Price, and T. T. Mousley. We shall publish a full report next week.

HOW TO DETECT THE SEX IN DOMESTIC FOWLS' EGGS.

IN my youth, about fifty years ago, I had the privilege of keeping fowls, and about that time I was given to understand that it was possible to foretell the sex in the egg, but could find no person who could instruct me how to do so.

After a short lapse of time I determined to unravel this mysterious subject myself, if there were a possibility so to do. I began examining eggs, classing them according to the difference I found in the formation of each, marking each class, and putting them under hens as soon as an opportunity offered; when, in less than twelve months, I was fully convinced that I had discovered either a method or the method of foretelling the sex in the egg by ocular demonstration in the chickens produced.

At the large end of the egg there is a circular space or cavity containing air, which country folks call "the crown" of the egg; its proper name I know not. When you examine the egg,



1. Centre-crown, male.
2. Side-crown, female.

hold it, the large end uppermost, before a candle or gas-light, and in looking through it you will observe a dark circular mark something similar to the moon when partially eclipsed. This dark circular mark is the space filled with air, or "the crown" of the egg, and is to be found in all eggs, situated either in the centre or on the side of the perpendicular dotted line. (See diagram.)

My method of examining the egg is as follows:—I make use of the thumb and forefinger of my left hand as two points, by placing the small end of the egg on my thumb, my forefinger covering the large end of it, and as near the centre of each end as possible. I then

place the egg in this position steadily before a candle, and gently turn it round; if the crown be in the centre it will be scarcely visible, the forefinger nearly covering it. On the contrary, if the crown be on the side (No. 2) you will only see it on one side of the egg as you turn it round.—RICHD. SMITH, *Wood Green, Witney.*

DR. BEVAN.

OUR apiarian friends will be sorry to hear of the decease of the venerable Dr. Bevan, who ended his earthly career on the 31st of January, aged eighty-nine years. He died where he was born, at Hereford. We have reason to believe the great labours devoted to his work, the "Honey Bee," never met with the remuneration its great merit deserved. That book will always be a standard authority amongst naturalists; and we should rejoice to learn that the copies still on hand were disposed of, in order to give encouragement to the publication of a new edition which the respected author had prepared for the press a few years since.

OUR LETTER BOX.

LIVERPOOL SHOW DEFAULTER (*The Committee*).—If Mr. Price does not pay after a proper notice from a solicitor, sue him in the County Court, and send us a report of the trial. You must recover, and we will publish his full address as a warning.

POINTS IN A HAMBURGH COCK (*An Amateur*).—It is difficult to decide between your birds; but on consideration we give it against the bad earlobe. No merit can make amends for such a defect as this. The head of a Hamburg cock is a very important point; and if the comb and deaf ear are both at fault you may be sure you will have no success. Take care of the other bird, and bring him forward; the time of year is in your favour. It is not necessary the tail should be all bronze, but the feathers should be edged with it.

FOWLS IN CONFINED SPACE (*H. Nixon*).—We never advise any fowls to be kept in such a confined space as 8 feet by 12 feet, it is cruel to them and profitless to the owner. Three Spanish pullets and no cockerel would do as well as any. Buy fresh ones every summer, and sell their predecessors.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	FEBRUARY 14—20, 1860.	WEATHER NEAR LONDON IN 1859.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
14	Tu	Viola hirta.	29.869—29.566	48—28	S.W.	.02	19 af 7	10 af 5	32 2	22	14 28	45
15	W	Vinea minor.	30.089—29.987	50—43	S.W.	.06	17 7	12 5	43 3	23	14 25	46
16	Th	Pulmonaria officinalis.	30.069—30.025	58—40	S.W.	—	15 7	13 5	40 4	24	14 22	47
17	F	Ulmus campestris.	30.184—29.992	56—36	S.W.	.01	14 7	15 5	22 5	25	14 18	48
18	S	Ulmus montana.	30.276—30.209	47—27	N.W.	—	12 7	17 5	56 5	26	14 14	49
19	SUN	SHROVE SUNDAY.	30.351—30.238	48—42	N.W.	.02	10 7	19 5	20 6	27	14 9	50
20	M	Sun's declin. 11° 5' s.	30.290—30.225	52—26	W.	.04	8 7	21 5	33 6	28	14 3	51

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 45.1° and 32.2° respectively. The greatest heat, 57°, occurred on the 18th, in 1850; and the lowest cold, 9°, on the 14th, in 1855. During the period 156 days were fine, and on 75 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE plants occupying the beds in the conservatory to be arranged, cleaned, and pruned. If the health or habit of a plant, or other considerations, should render it desirable to prolong the season of blooming, the pruning may be postponed for a week or two longer. Continue to pot Cinerarias, Calceolarias, Pelargoniums, and all other such plants when they fill their pots with roots. To be then kept close for some days until fresh root-action begins. Green fly to be kept down.

VERBENAS.—Put them in heat, to get cuttings; as also Heliotropes, and all other such plants, of which there is a scarcity, for bedding-out purposes.

STOVE AND ORCHID-HOUSE.

Increase the moisture and temperature gradually as the days lengthen. Start old and young plants of Clerodendrons, Dipladenias, and Stephanotis, in a sweet bottom heat. Rondeletias to be cut in, and started in the same manner.

Shift all Orchids that are starting into growth. As a high temperature causes a premature and unhealthy growth it is advisable to keep up a healthy atmosphere of from 55° to 65°, with an increase of a few degrees in sunshiny weather, when a little air, if only for a very short time, should be admitted; but be careful to avoid draughts at this early period of the year. All growing plants to be watered at the roots only, being careful not to allow any water to lodge in the axils of the leaves to cause decay. To preserve the roots of some Orchids in a healthy state it is necessary to grow them on blocks of wood; the blocks to be made proportionate to the specimens they are intended to bear; and the heel of the plant to be placed close to the end of the log, to give as much space as possible for the plant to grow upon. The following thrive well on blocks without moss:—*Barkeria spectabilis*, *Leptotes bicolor*, *Phalanopsis amabilis*, and *Sophronitis cernua*, the Brassavolas, the Cattleyas, nearly all the dwarf Epidendrums, all the Lælias, and nearly all the dwarf Maxillarias and Oncidiums, and all the Schombergias.

FORCING-HOUSES.

CUCUMBERS.—Attend to the thinning and stopping, and impregnate the fruit blossom when open.

FIGS.—Care to be taken that cold currents and sudden changes of air are excluded from the trees. The roots to be well supplied with water, and the trees to be occasionally syringed overhead.

PEACHES.—When set, thin the fruit and shoots as required; to be done gradually, a little at one time, to prevent any sudden and injurious change in the system of the tree. A liberal supply of moisture to be kept up, with a temperature ranging from 55° to 65° and 70° by sunheat. A drier atmosphere is advised for trees in bloom; the bloom to be thinned if the trees are weak; and if shy setters, to be artificially impregnated, using a camel-hair pencil for that purpose.

PINES.—Be watchful about the bottom heat, and lose no time in raising the pots nearer to the surface if an approach to a burning temperature is apprehended. To be thoroughly watered when they require it, and to be syringed overhead in the morning and evening of every clear day unless the plants are in bloom, or ripening their fruit. Any crowns, suckers, or small plants not well established will do well in a pit or frame on a bed of leaves, or well sweetened dung, where they will make a rapid and vigorous growth during the summer.

VINES.—Attend to last week's instructions as to stopping all laterals, &c., and thinning the bunches in good time; and tie up all the principal shoulders with soft strands of matting. Never allow the head or hand to touch the berries. Give them plenty of air-moisture during their swelling season; to be discontinued when they begin to colour. Shy-setting sorts—such as the *Black Damascus*, *Cannon Hall Muscat*, &c.—will set better by thinning the blossom-buds before expansion, by which a more regular and compact bunch will be produced. Late Vines should be pruned and dressed; and if not frosty the lights to be removed, which will retard their breaking, and benefit the trees. WILLIAM KEANE.

THE LONDON HORTICULTURAL SOCIETY.

NEVER have we faltered in the expression of our opinion that the LONDON HORTICULTURAL SOCIETY is capable of being one of the nation's institutions. Gardening is one of the prevailing tastes of the people,—it is loved and practised by the tenants of palaces as well as of cottages,—and is a source of pleasure, health, and profit to all. A national Society, in which the people could trust that it would be studious and energetic to promote this object of their general interest, could not fail of being sustained by them; and the LONDON HORTICULTURAL SOCIETY has hitherto declined, because it was not trusted. The tastes and objects of the few, and the most expensive departments of gardening, only were fostered by it; a costly, ruinous, and unproductive expenditure was indulged in, and hence the Horticultural Society of London fell into difficulties, and became an aged, decrepid, effête institution. But we will not retread that distasteful path; “let bygones be bygones,” and let us look forwards, not backwards.

It will be gratifying to all who are interested in the advancement of practical horticulture to know that the Council have decided upon a complete change in the working of the Society. The course that has now been determined upon by the Council is not a partial change in some one department—not a mere patching up of a piece of old machinery to be set going for a few months till some other part snapped or got twisted, and brought the whole again to a stand-still. The change that has been effected is a thorough and radical reconstruction—all the parts so aptly fitted, that it will not be the fault of the Council if they do not work as one harmonious whole.

It may be said that the Society now consists of two great divisions,—the Ornamental and the Useful. The former will be represented by the new garden now in course of formation at Kensington Gore; and the latter by the old garden at Chiswick, which is to be retained, and made more practical than ever. The management of these two gardens, so far as relates to matters of cultivation only, are placed under one general superintendent, who was lately appointed in the person of Mr. George Eyles. At Kensington Gore all public promenades and great exhibitions will take place. Hither the offices and exhibition-rooms will be removed, and here the ordinary meetings of the Society will be held.

Chiswick Garden is to be maintained entirely as a great experimental establishment; and the manner in which the practical operation of the Society is to be carried out is by the formation of various Committees, of which the Fruit and Vegetable, and the Floral, are already in operation. Each of these Committees is placed under the management of a Secretary, the appointment to the former being accepted by Mr. Robert Hogg, and to the latter by Mr. Thomas Moore.

These Committees will have the entire control over the departments to which they refer. In the fruit and vegetable department, "the business of the Committee shall be to encourage the production of new and improved varieties of fruits and vegetables, by examining and reporting on all such as may be submitted to it, or cultivated for that purpose in the garden. Also, to collect for the Council reliable information respecting the adaptability of particular kinds of fruits and vegetables to the varied conditions of soil, locality, &c., of the United Kingdom, and to provide for the naming of fruits forwarded by or through Fellows for that purpose."

"The Secretary of such Committee to take charge of all fruits and vegetables sent to the Society, and to make, if approved by the Fruit and Vegetable Committee, arrangements for having their merits tested, and to report the result to the Committee, for the information of the Council." To watch all comparative trials of the qualities of fruits and vegetables at the Garden, and to report thereon. "To have full power over such growing crops as come within the range of the Fruit and Vegetable Committee—i.e., all new fruits and vegetables, and all other fruits and vegetables grown or required for comparison or nomenclature."

Such are a few of the leading features of the constitution of the Fruit and Vegetable Committee, which will serve as an example of the others also.

Now, this is nothing more than ought to have been done all along. The work which the present Council has undertaken is just what formerly constituted the life-blood of the Society, and which former Councils never ought to have relinquished. We have long urged some such course as this; we have endeavoured honestly and sincerely to stir up the Fellows of the Society to a sense of the importance there was for a vigorous prosecution and encouragement of practical horticulture; we have long ago shown how this could not be done without a preponderance in the Council of men who were either devoted to gardening as a pursuit, or men of that practical and business-like constitution of mind which always leads the possessor of it to a right conclusion, in whatever position he may be called upon to occupy; and it is no small degree of pleasure to us to feel that all we said and recommended, however distasteful it might have been to the existing powers at the time, was right, and is now justified by the course that has been adopted.

As the best assurance that the Society will now prosper, it is only necessary to refer to the list of gentlemen who now compose the Council. Not chosen because of their social position only, but, combined with that, men of sound practical knowledge, sagacity, and energy; and with such men as its Councillors, the Horticultural Society

may enter upon the field open to it, confident of public support and perfect success.

PLANTING A CIRCULAR BED.

IN a late number of your paper was a suggestion for planting a circular bed with—first, a ring of *Daphne cneorum*; next of *Erica herbacea*; then of *Skimmia Japonica*, and dwarf Golden Hollies for the centre.

I have had such a bed prepared for planting in a situation exposed fully to the sun, and am now told by a nurseryman, "that *Skimmia Japonica* will not thrive unless in the shade, that its leaves turn yellow, and fall off, and are very subject to the red spider." Will you state what is your experience of it? and if it is unsuitable for a sunny situation, please to suggest a substitute. The soil of my bed is composed of rich sandy loam, leaf mould, and peat.—OSGOLDCROSS.

[See what Mr. Beaton says to-day in answer to your inquiry.—EDS. C. G.]

SPRING AND SUMMER BEDDING.

THERE are spring and summer bedding, and there is a bedding for all the year round; and, according to "THE DOCTOR'S BOX," there is a mode of bedding which is "of a more economical character than is practised in large establishments." Since then (March 17th, 1857), we have received many letters requesting to know more of this "more economical" way, and our spring bedding rules and suggestions ever since have had reference to that very way.

At the "back front" of the large conservatory at Kew (the front of a garden structure, in the language of gardeners, faces the meridian, the north is the back front) may be seen the best plan for the all-the-year-round style of bedding that I know in the neighbourhood of London. The American ground is the part I mean, and everyone who has the chance of seeing that style, and wishes for it, ought to note down the names of the low, spreading, shining, dwarf and half-dwarf plants, which are massed there in the order of botany; and from seeing their heights and manner of growth one could easily arrange so many of them in one bed as that the highest kinds should be in the centre, and that very small-leaved kinds and very broad-in-the-leaf kinds should not come in contrast close together, unless the one were a very light green, and the other as much the darker from the common run of evergreens. A row of plants of Tree Box, two feet high, one of the lightest greens, round a centre of *Rhododendron ponticum*, which is one of the darkest greens, will exemplify what I mean; but the same row of plants of Tree Box would not tell in front of a centre mass of Aucubas, another light green, and lighter spotted, because of the difference of the size in their leaves; not because the colours were near. If the leaves of the Tree Box were as large as the leaves of *Rhododendron ponticum*, and of their shape, the two would agree perfectly—that is, the Tree Box and the Aucuba would agree, not in the contrast between them, but in the two put together forming a stronger light green than either of them could do, or give, by itself. But if the leaves of the Tree Box were as big as the leaves of a *Rhododendron ponticum*, the two put side to side would agree in contrast. The "harmony of contrast," as the great French dyer says, the harmony of contrast is here of the very lowest kind, on account of the dullness of the green of the Box tree. The Aucuba put in front of a *Rhododendron ponticum*, or between the eye and the Pontic Rhododendron, would raise the harmony of contrast four degrees nearer to perfection, on account of the healthy, shining, light green of the "Japonica;" and a very healthy Golden-leaved Holly in front of the Rhododendron would give the highest degree of this kind of harmony that we can constitute from our store of hardy evergreens.

There, then, are the three degrees of the comparison of light green and dark green shrubs planted together in

one bed—the Box good, the Japonica better, and the Golden Holly best. But there is a harmony of combination. We combine, or put together, two or more things, or plants of the same kind of leaf, and of the same colour, to the leaves in different degrees of intensity, or of strength, and the whole put together will look as so many degrees of the very same thing, and so placed as that the one would help the other; as the Box tree with Rhododendron leaves and the Aucuba were placed to accord in two different light greens, or two degrees of the same thing. The foundation of all flower gardening, and of planting beds of all kinds of evergreens which are under ten feet high, is founded on that rock, and on none other—founded on the harmony of contrast, and on the harmony of combination. The nearer we come to the highest contrast, and to the most perfect combination of running shades in leaves or in flowers, the surer we are on that foundation.

After the plants we use rise higher than ten feet, another rule, equally founded on natural laws, comes into play—I mean the natural habits of these plants; but that rule affects planting trees and shrubs in mass or plantations, with which we have nothing to do in planting beds.

More beds on the plan of “THE DOCTOR’S BOY,” “of a more economical character than is practised in large establishments,” have been asked for, and also another style of grouping dwarf evergreens in beds for the whole year, which we have recently recommended in these pages. *Skimmia Japonica* was one of the evergreens in this arrangement; but it seems yet, from what we hear, that this plant is not sufficiently known among country nurserymen, or they do not possess a sufficient stock of it to enable them to sell it so cheap as to enable the people to plant it in quantity. Some say it is more of a greenhouse plant; and some that it is more suited for planting under the shade of trees, like the Aucuba, Box tree, or some of the evergreen large-leaved Berberises. The latter may be true to a certain degree, but in the climate of London the *Skimmia* is quite hardy, and does out on the lawn in the full sun to my own knowledge and satisfaction. For here, as Mr. Rivers says about the young roots of his pot fruit tree, “seeing is believing;” although, generally speaking, I do not always believe the one-half of what I see with my own eyes. Keep to “natur” and I shall believe all I can see of it, if I understand it—not without; I must have the evidence of more than the one sense of seeing before I would pin my faith to the sleeve of a philosopher. But come to art and artificial doings, and no man of metal should ever believe many of the things he may see, as clear as cut glass, any day he walks abroad. Why, it was only the last Christmas-day, or rather the day after, that I went with a big boy to see the fun at the Crystal Palace, lest he should see too much and get out of his depth in the crush of the crowd; and there I saw a man with an empty hat in his hand—he shook it, and, *presto*, it began to boil over furiously, and throw up streams and volumes of pure flocky feathers, soft and silvery as swan’s down, and in sufficient quantity to fill a feather-bed and ever so many pillows. All that was done by a perfect rule of art, yet I did not believe it; but I know of others who firmly believe in some rules in gardening which are just as far from the truth as was that stream of flocky feathers. On the other hand, there are thousands who believe in what they cannot see for the moment—the rules of flower gardening, for instance. They are not my rules, I only endeavour to rule with them, and my only wish is, that I could rule straighter; but there are thousands who believe in them without being at all able to see them, a fact which we are made aware of from the number of plans and letters about flower gardens and beds which reach us constantly from all parts of the country.

About a substitute for *Skimmia*. There is absolutely

none on our list: its dark green plain leaves were put in harmonious contrast with the best golden-yellow leaves of the yellow variegated Holly, with the low-growing Heath, *Erica herbacea*, in front of it. But do away with the Heath, and substitute *Pernettya mucronata* for it, then *Vaccinium ovatum* would be just in place; but the two would need more care than the Heath and the *Skimmia*. They would require to be pruned in every year after flowering, to keep them in the proportions of heights necessary for bedding plants.

Vaccinium buxifolium is another very low and nice bedding plant for all the year round; but such evergreen beds are not suited for every garden, nor for every part of a garden. Everything about a garden ought to be on some plan or system before it can give real pleasure to visitors who understand such things, and those who do are more numerous in these days than some people think. Near water or rockwork, or on the edges of steep banks, and even on the slopes of banks, near the ends or corners, and in open glades, in shrubberies, or part plantations, are the proper places for these low masses, or beds of evergreens to last the year round. Just as Mr. Fish and “Rose’s” Cannas and other exotic tall-looking things come in best at long distances from the walks and windows, and in front of dark masses of taller evergreens, or near the edges of water, where you could come close up to them at the bend of a walk.

I highly approve of these Cannas in their proper places. *Discolor* is by far the best of them all for grandeur of effect: no plant I know is more beautiful in the leaves after it has been a month in the open air than *Canna discolor*, with its large leaves one-half bronzed purple and one-half deep green, and shining in the morning sun like some fairy *crystallinum*. Without stove heat, however, to get it well up in the spring it is of very little use, and without that assistance none of them rise over a yard, or from that to four feet; but to get the real goodness from them the tall sorts should not be under five feet high at planting-out time. *Canna Indica* is as hardy as most of the Fuchsias, and will live out of doors by having a good cone of ashes over it in the winter. I had it so for years; and it bloomed yearly and ripened seeds which vegetated next year in the open beds.

There are from thirty to forty kinds of stove plants of the same looks and habits as the Cannas, which will do in the open air in summer much better than they ever yet did in pots in the stove. All the *Hedychiums* are of the same degree of hardiness for out-of-door work as Cannas; but those of them with narrow leaves, like the Ginger plant are not worth putting out. You want something grand about exotics in the open air. The Pampas Grass would be no better than pond-weeds were it not for the grandeur of its plumed flower-heads.

The old *Maranta*, now *Calathea zebrina*, is the very next in striking beauty to *Canna discolor*; and if it could be had at six or seven feet high, like that Canna, no plant in the world could match it in splendour. I had it in an exotic garden once, finer than I ever saw it in-doors. All these reed-like plants like a deep, moist, sandy soil; and the more rotten leaf mould is added to it the more shining and more beautiful they will look, and every one of them will grow in water up to the knees. There is an open wide ditch running in front of the Botanic Garden at Oxford, in which all these and many more stove plants grow luxuriantly every summer if the gardeners merely throw the refuse of the potting-bench down there. *Limncharis Humboldtii*—that yellow-floating flower in the crystal lakes at the Crystal Palace—will run and bloom in that open ditch like any species of home-aquatic; of course the frost takes them off, but none of them will go so soon or so readily as the *Regent* Potatoes.

The crowning cap of this stamp and style of gardening is the *falcata* Bamboo of the Indian hills, the Pampas Grass, the *Tritoma uvaria*, and the *Canna discolor*. Plant a long row at the margin of a lake, or under

the most projecting part of the rock garden with *Bambusa falcata*, which is more hardy than the Pampas; in front of the Bamboo plant as many Pampas Grass as the place will hold, at twenty feet apart, in the most irregular way; the *Canna discolor* can then occupy the centre spaces between the Pampas plants; and behind the Pampas, if the Cannas are up to five feet—or in advance of the Pampas, if the Cannas are low plants at turning-out time. Then go to the windows, or to where this place is most seen from, and send a man with tall stakes in among the groups. Let him tie a piece of newspaper to the top of each stake, and let him drive down a stake in every place you will tell him, and that will be the places for the Tritomas, and you cannot have too many of them. All that he will have to mind is to see that his stake is not too near a plant, and the care on your part is to see that none of the Tritoma plants run in straight lines, no matter if they be regular, or at regular distances about the middle of the place; but towards the right and left have them so scattered and careless-like, as if they had found out the places by chance. The Yuccas and Aloes, and all their likes, at least to the number of seventy good kinds, may occupy a higher ground and nearer the rocks; and in the shade of the great trees, a little to this or that side, plant the tallest forms.

D. BEATON.

HEATING A SERIES OF HOUSES.

FROM the plan sent by "H. B.," I gather that the forcing-garden is bounded on the north by a wall 12 feet high, with a field outside. Twenty-eight feet from that wall are a couple of vineries in one range, each 18 feet by 12 feet. Vines planted inside, but with a border in front. Fifty-nine feet from the boundary-wall, or 19 feet from the front of vineries, it is proposed to erect a range of three span-roofed houses, each 17 feet by 14 feet. The floor to be sunk eighteen inches below the ground level, so that the houses shall not shade the vineries. Beyond these it is proposed to make a pit for Melons and Cucumbers, with frame-ground and compost-ground, and potting-shed beyond; and the questions chiefly are, How to do this and heat them efficiently, it being desirable to have the boiler on the field-side of the boundary wall.

It would also be desirable to heat a cold pit, 16 feet by 6 feet, near the west vinery. With these explanations, I will shortly glance at the inquiries made, though I do not pretend to be able to supply the place of a professional on the spot.

I do not like mentioning tradesmen by name; but if you go to the expense of having a boiler large enough, so as to expose enough surface to the fire, there will be no objection that I know for having it and the furnace in the field outside the wall. The only objection in the shape of economy would be, that you would have two pipes, each 28 feet long from the boiler. That, under such an arrangement, will be heat somewhat thrown away, as 28 feet would have to be passed before reaching the vineries; and then, to avoid doorways, some six feet more would have to be passed before the heating-pipes for each house could be fixed. If there is a strong reason for the boiler being placed there, I would not mind that objection; for even if the boiler were placed between the houses, or in front of the contemplated pits, there would be considerable space to pass between them. If the channel for the pipes in either case is securely covered, and the channel left open at the end, the heat will pass into the house. In the present case, a low span-roofed pit might cover the space over the pipes from the wall to the vinery, and the heat would be sufficient to keep out frost in general circumstances.

A boiler to heat these efficiently and early, whether saddle-backed, conical, or tubular, &c., would cost from £10 to £20; and if great security is desirable, it would be as well to have two boilers in case of an accident. I am merely glancing at the idea of price, as that will depend somewhat on the quantity of piping wanted; and that, again, will depend on the forcing being early or not.

The first thing to be thought of, then, would be taking a four-inch flow and return pipe right from the boiler to the extremity of the pits to be heated. This would be something like 100 feet,—which would swallow up 200 feet at once,—merely for securing the means of heating. I do not know the slope of the ground, but I should like these pipes to rise two or three inches from

their start, at a short distance from the boiler to the extreme end, and a small air-pipe to be inserted there. Provided the flow-pipe comes from the top of the boiler, and the return enters near the bottom, it matters not whether for the length above stated the pipes are one above another or placed side by side. More space will be wanted if placed side by side, but junctions can be made with them more easily. Let it be clearly understood, however, that as these main pipes are higher than the boiler, so all other pipes taken from them should be higher than these to secure rapid circulation. The depth at which you want pipes in pits should, therefore, be well considered, for the top of the boiler and these main pipes should be deeper still; at any rate, I should like no pipes lower than the top of the boiler.

The garden on the east side being shaded by trees, I would make the west vinery the earliest; and through that, near its junction with the east vinery, I would carry the main pipes. These houses, I presume, are lean-tos. To avoid all doorways, four pipes should go round the ends and fronts, two connected with the flow-pipes, and two with the return, or three with the flow and one with the return. It matters not the height in moderation of these pipes above the mains, or how they are placed,—level, in stacks, or above each other, so that the communication with the mains is secured. Pipes must be taken through the division in the other house in a similar way. For a late-house, two pipes would be sufficient. These must be supplied with valves to let heat on and off as required; a T piece in each main pipe will enable this to be easily done. It is as well to have valves or stoppages for each pipe; but generally the stopping of the flow-pipe in the house arrests all circulation. Whatever the number of pipes in a house, it is only necessary to have one junction with the main flow and return. In the present case, two T junctions from the main would serve both houses; and on the cross of the T the valves could be placed.

Such valves, if of brass, will hardly ever get out of order with good management. They add, however, materially to the expense where economy is an object. To secure economy and simplicity, the returns may be managed as above; but one upright pipe may be taken to a cistern, a foot or fifteen inches square, and as much above the level of the heating-pipes in the house; and two openings from that cistern will furnish the flow-pipes for each house, and these openings may be stopped with wooden plugs as desired. I once managed some put up by the father of the present Mr. Weeks, and nothing could answer better than these wooden plugs. There was great variety of level of pipes, but none were below the level of the top of the boiler.

The cold pit, 6 feet by 16 feet, has its front wall running in a line with the back wall of the vinery. Two three-inch pipes taken from the mains, along the back of the vinery if there is nothing in the way, may be taken round the pit, and will keep out frost. In fact, two along the front and one end would do that. The heat from the 18 feet in the house will not be lost; but if it is deemed advisable to keep the vinery quite cool, when it might be advisable to heat the pit, then the pipes might pass along the border behind the vineries. Even here, again, this 18-feet-in-length space might be covered so as to preserve plants.

The main pipes now pass through the vinery-border, and the walk behind the contemplated houses, through what is designed for the middle house, and on to a pit or series of pits. If the Vines had not been planted inside, and the vinery-border were mostly raised above the ground level, the bottom of the border of the early-house might have been traversed by a series of pipes; covered with open rubble or a chamber to excite the roots into action. Even if four small drains went below the border, communicating with and not lower than this pipe-drain, or rather chamber, much heat would be diffused into the soil, the ends of the chamber being shut up, except a small opening to prevent the air in the drains being stagnant. If this should not be done, then if the two ends of the pipe-chamber are open, one into the vinery and the other into the new houses, little heat would be lost. If, again, an open grating or two communicated with that chamber from the external air, currents of fresh heated air would be thrown into either house at will.

The length of the three new houses in one range is proposed, in the whole, to be 51 feet—that is, each house will be 17 feet long by 14 feet wide. Did the main pipes pass in a straight line they would cross the middle house near the division separating it from the house on the east end. There will be no difficulty in heating each house separately, by each having a separate flow-and-return pipe connected with the mains by either of the modes spoken of for the vinery. These connecting-pipes for the west

house must pass through the middle house: that, therefore, would become the warmest. You do not say whether you want bottom heat or not; but that could also be easily secured in one, or even in every house, and you could thus have a bed instead of a stage or platform. Just as in the vinery, the number of pipes will depend on the heat wanted. For a span-roofed house under such circumstances, half of the glass roof facing the north, and the other the south, to keep a temperature from 60° to 70° in winter, you would require three four-inch pipes on each side—two as flow, and one as return. The return might pass under the bed and keep bottom heat in a layer of tan, &c. Separate pipes may be used for bottom heat; but the pipes, as already stated, must be above rather than below the level of the boiler. At the farther end of all these pipes, whether for bottom heat or top heat, a small gas air-pipe should be inserted, the open end standing considerably above the highest pipes and cisterns. To give a sort of idea of what would be wanted, supposing one of these divisions were turned into an early propagating-house, then supposing a three-foot pathway, at least, down the middle, then there would be a bed on each side, some two feet or more from the floor level; and to heat these beds, whether cased with tan, sand, &c., two four-inch pipes would be required on each side. Two also would be required on each side for top heat. The simplest plan would be to make top pipes on each side flow-pipes, and return them below the beds. Little inconvenience would arise from this arrangement, if properly managed; but circumstances might occur when bottom heat was wanted, and not top heat, and, therefore, it would be better to be able to heat either separately, and one side of the house independently of the other side. Of course, for late forcing, half the quantity of piping would be sufficient. The heating would be simplified were there only two divisions instead of three. The same will hold good as respects the pits, &c.

There is not so much advantage in having span-roofed houses, when, as in this case, the slopes of the glass point north and south. It is preferable when, in some measure, they point east and west, as thus they get full advantage of the sun, and the strength is moderated at noonday. I notice, however, that there is a walk behind the range to the north, and probably all round it, and the span form may be designed that the contents of the houses may be seen from the outside as well as from the inside. Were it not for this, some would prefer a range with a short hipped-roof on the north side, and a longer sloping roof to the south side. Thus, supposing the north wall to be four feet above the ground level, and one foot and a half below, that would be five feet and a half altogether. The front wall would be three feet or eighteen inches above the ground level. A hipped-roof of glass, say four feet, sloped so as to meet a ridge-board seven feet and a half or eight feet from the floor, neither of which would shade the vinery, would give a long slope, and, therefore, command more direct sunlight and warmth to the south.

As opinion is asked as to the construction, roofing, &c., of these low span-roofed houses, I would adopt one of two plans. First: the ground being cleared out so as to have the floor inside eighteen inches below the ground level, I would continue that two feet and a half above the ground level, but would have two feet of that upright glass made to move outwards for air, by being connected with a rod and ratchet fixed at each end. Second: Were this upright glass disapproved of, then I would raise the wall above the ground level only about fifteen inches; and in that I would have two slides on each side in each house, fifteen inches long and six inches deep, for ventilating, having slides also on the inside to be used in severe weather. These six slides on each side would give enough bottom air, and should open against the pipes. In very hot weather in summer the doors might be opened if necessary. Either of these modes would do—the last would be the least expensive.

So much for the base. Now for the span-roof of glass. Take the middle of the width of your floor inside. Set a rod up this perpendicularly, $7\frac{1}{2}$ feet or 8 feet high—the former I should prefer under the circumstances. Let two other rods meet it from the side-walls, and the slope of your roof will at once be seen. The point of junction is where the ridge-board would be. Instead of one ridge-board, however, I propose having two, separated from each other from eight to twelve inches—say nine inches. This open space I reserve for top ventilation. Stout cross-pieces—say every three or four feet apart, will keep these ridge-boards securely in their places, and also do for hanging by pivots at each end, the boards or ventilators made to suit these openings between the cross-pieces. These boards should not fit

so tight but that they will move easily. They should not be pivot-hung by the centre of their width, but at about a third of their width—say at the north side. A small button will hold them in their place when shut; when that is moved with a suitable handle, the extra weight on that side will cause the ventilator to fall downwards. To keep it nearly air-tight when shut, a small fillice is fastened on to the under side of the ventilator on the north-side ridge-board, and to the upper side of the ventilator on the south-side ventilator. Top ventilation can thus be easily given from the pathway inside, and bottom ventilation from the walk outside. These same cross-pieces alluded to serve as the base for a frame to support a coping of two boards wide enough to reach a little over the glass, and thus prevent wet driving in easily, and leaving from three to four inches on each side clear above the glass—say four inches, to allow the air to pass freely to the ventilators. As described, the ventilator will open to its full size; but it may be easily regulated so as to give an inch or more. One object for this simple and effectual mode is to have the roof on both sides fixed. As the rafters or sash-bars will not in either case be above eight feet long, or somewhere thereabouts, even from the two side-walls—if these joined to the wall-plate at one end and the ridge-board at the other, and not farther apart than twelve or fifteen inches, and the glass is not above sixteen-ounce good British sheet—the bars will not require to be much stronger than those commonly used—say one inch and a half by two inches and a half. If you used glass as heavy as twenty-two ounces to the foot, I would recommend the bars to be two inches by three inches.

Of course, the houses might be arranged differently. One with beds and bottom heat; one with bed or stage without bottom heat; and one with plants standing on the floor.

If the main flow and return are some eighteen inches or so below the ground level, you may easily have bottom as well as top heat in your pits. You would see by notices lately, that no great depth is necessary for such a purpose. If the walls are built hollow, it will make less difference as to heat whether they are above or below ground. For an early Cucumber-house, if you could sink enough for a pathway at the back, I would prefer a hipped-roof at back, and as steep a slope as possible in front. Supposing that you had such a house twelve feet to eighteen feet from these houses, and you could sink the path behind three feet below the ground level, and have a wall three or four feet above, and a short hip meeting a ridge-board, eight feet from the floor, that would give a nice slope for winter Cucumbers, the front wall being merely nine inches or so above the ground level. For pits there can be no difficulty whatever, even if you had two or three ranges. But one thing you must do before you commence operations—calculate according to your wants how many feet of pipe you will want, and satisfy yourself that you get a boiler that on good authority will do half as much more, and part of that, be it recollected, at one hundred feet from the boiler. With the respectable firms who advertise in our columns, you will be at no loss in procuring the most definite information. Above all things, be sure your boiler has more power than you actually need. A small trumpery thing will worry all connected with it.

R. FISH.

JAMES CARTER & CO.'S GARDENER'S VADE MECUM.

THIS is Messrs. Carter's Catalogue of Floricultural, Vegetable, and Agricultural Seeds under a new leading title. It is an enlargement of the Catalogue of former years, furnishing much interesting additional matter, and is prepared with the same care and minuteness of detail that characterised those of former years. A very important feature, which is new in this edition, is an additional column giving remarks on the adaptation of the different flowers, their culture, and the soil in which they should be grown. The Calendar is also considerably enlarged; and the treatise on German Asters and Stocks, translated from the original of Messrs. Carter's German correspondent, is so interesting that we take opportunities of introducing it to our readers.

"CHINESE OR GERMAN ASTER (*Aster Chinensis*).

"A whole series of varieties have arisen out of this summer plant by the continual industry and attention given to its cultivation, and each variety has its peculiarities; I will here mention them in turn as they have been produced. The progenitor was the plain *Chinese Aster*, which still exists, but sparsely cultivated.

"QUILLED ASTER.—The single petals of the common blossom consist simply of tubes or quills, and the exterior crosses only are blossom-petals which are slightly reflexed; it is from 1½ to 2 feet in height, branches freely, and throws out many large blossoms; its fittest use is for flower-groups in parks or general ornamentation in the flower garden.

"TURKISH ASTER.—This very much resembles the quilled Aster, but it grows only to a height of 1 to 1½ feet, has many branches, and the flowers are smaller than the preceding.

"DWARF ASTER.—The individual blossoms of the blossom-tube are partly tube-like and partly leaf-like; it reaches a height of from ½ to 1 foot, and is richly covered with moderate-sized flowers; they are principally used for edging.

"GLOBE ASTER.—The principal flowers of this Aster are very large, and so arched that they may be compared to a half-ball; most are quilled; height from 2 to 2½ feet; same uses as the quilled.

"PYRAMIDAL ASTER.—The beautiful large flowers appear on this Aster nearly all of one height; it produces very few side-flowers; most probably received its name because it resembles an inverted pyramid; some blossoms are quilled and others not; height from 2½ to 3 feet; same uses as the preceding.

"BOUQUET ASTER.—This Aster deserves its name, for each individual plant is so voluptuously covered with bloom that the green of the foliage is scarcely visible; almost every plant forms itself into a perfect bouquet; height from ¾ to 1½ foot; highly ornamental in pots; blooms for a long time on account of its great richness in blossoms.

"TRUFFAUT PYRAMIDAL ASTER.—These Asters testify the great care and perseverance the grower has taken in rearing them; there are now five varieties of it:—*Fleur Perfection*: The flowers of this kind are enormously large; petals very long and but slightly reflexed; height from 2 to 2½ feet:—*Fleur Bombée*: The flowers of this variety are very large and full, and form almost a semi-ball; height from 2 to 2½ feet:—*Fleur Chrysanthème*: The flowers of this variety are not so large as the preceding; the petals are entirely reflexed; height about 2 feet; produces more side-flowers than the previously described varieties:—*Fleur Pivoine*: The Pæony-flowered Asters turn their petals towards the centre, and a flower not quite in full bloom resembles a ball; height from 1½ to 2 feet; produces but few side-flowers:—*Fleur Imbriquée* and *Pomponée Imbriquée*: The leaves of these flowers form themselves exactly like tiles, one on the top of the other to the centre of the flower; the Pomponée produces smaller blooms, but of such beauty, that they resemble a perfect semi-ball, and being dwarf, look well planted in front of the taller kinds.

"GIANT EMPEROR ASTER.—This variety has sprung from the Pyramidal Aster, and for size and form is unsurpassed. The stem consists in the middle of little tubes; outwardly they are little leaves, and are so regularly formed as to leave nothing to be desired. It bears only a few flowers on a robust strong stem, from which the side-sprouts grow in the form of a candelabrum. In favourable cases it produces five flowers, of which the chief blossom is four inches in diameter; in spite of its size, all its flowers are of an equal height. The sowing of the various sorts of Asters is done from the middle to the end of March, in cold beds, which are filled with good compost earth. The seeds must not be strewed too closely, because the plants require much space to get strong. The windows must be kept close until germination has taken place, and if necessary shade must be given. According to the growth of the little plants more and more air is given, till at last they become strong enough to have the windows open all day in favourable weather; in the middle of May the plants will be strong enough to transplant into their destined place. Asters may also be transplanted in a blooming state if they are carefully lifted out with balls of earth attached, and freely watered when implanted."

LEAKY AQUARIA.

I OBSERVED in your No. 592 an article headed as above. The aquarium is a troublesome amusement when leaky, and very difficult to stop; but as to gold size and the like remedies, they are like the Scotch gentleman's opinion of the rifle corps, "worse than useless." I have tried a plan which, I am most happy to say, answers admirably, and with which I shall have great pleasure in acquainting you. First, empty your aquarium and allow it to get perfectly dry; then procure some red lead mixed to the consistency of thick paint. Take a piece of tape (grey is best), the length from the bottom to the top of the tank; lay it out

flat, and coat one side with the lead; put it down the end, so as to go about a quarter of an inch on the glass; when fixed in the proper place pass the fingers up and down, so as to press the superfluous lead from under the tape, and likewise cause it to adhere and remain water-tight. I will warrant this not to fail if care be taken in its management. In fact, it is so easy and effectual, that, should any person have one leaky, I shall be happy to do it gratis, as I have tried it three times, and have found it a lasting cure. It requires to stand about a month to dry after doing it.—G. M. BURTON, *Southtown, Yarmouth.*

POLYANTHUS "BEATON'S GOOD-GRACIOUS" —THE OXLIP.

"A CONSTANT READER" of THE COTTAGE GARDENER will be much obliged to any other reader who will answer the following questions:—

First. Can a plant of the new yellow Polyanthus, called "Beaton's Good-gracious," be obtained for love or money?

Second. What constitutes the difference between a yellow Polyanthus and an Oxlip?

[First. You heard last autumn that the Messrs. Henderson, of the Wellington Road Nursery, bought the stock of that Polyanthus. We believe over eight hundred plants from one seedling in four years', or three years' propagation, and you will probably see it advertised soon.

Second. The yellow Polyanthus, and all Polyantus, are the florists' varieties of the common Primrose. The Primrose flowers, as you know, come on single pedicels, or flower-stalks. The Polyantuses come in umbels, or heads of so many flowers on the top of one stalk, and every flower looking up. Cowslips come like Polyantuses, but all looking down the contrary way. The Oxlip, which is a hybrid between the Cowslip and Primrose, comes with the guard flowers, or outside flowers, of the head looking down, and the centre flowers looking up, or half way between the two parents. All these are of more colours than one.]

CULTURE OF MONOCHETUM ENSIFERUM.

I WANT to know the treatment, time of flowering of, and general information respecting *Monochetum ensiferum*. My plant was bought from Messrs. E. G. Henderson & Son last spring; was grown on through the summer under greenhouse treatment; pinched hard to prevent flowering and to make a bushy plant; in September it was turned out on a south border; brought in early in October, and placed in a greenhouse; afterwards into a small stove, temperature 55° to 70°. Since doing so it has perpetually annoyed me by showing flower-buds but maturing no flowers, and by the dying off of small lateral branches all over the plant.—N. H. P.

[This pretty little rosy flower may now be seen in bloom in all the London nurseries which deal in such things. We brought it first before our readers in the spring of 1857 in the report of a meeting of the Horticultural Society, where it was exhibited from the Wellington Road Nursery (see Vol. XVII., page 392). Twelve months after that we gave all that was then known of its history and treatment (Vol. XIX., page 290), in a report of the February meeting of the Horticultural Society; and again the following summer in our report of the Wellington Road Nursery (Vol. XIX., page 393). It is one of Linden's plants from the Highlands of Columbia, according to the lecture given before the Horticultural Society; but in the *Bot. Mag. t.* 5132, it is said to have been discovered by Ghiesbrecht on the mountains of Oaxaca. As we have no other plant from that range of Mexican mountains which requires the same treatment as this, we rely more on Mr. Linden's own account as given in that lecture. Two causes prevent the subject of these remarks doing well in the hands of our correspondent. It was kept from 5° to 20° too hot this winter; and like its cousin, *Pleroma elegans*, under similar mismanagement, it resents it. Last autumn it had its very delicate roots dried by the sides of a red, but not quite a red-hot pot. It will do no good this spring, certainly. It must be pruned very close about the middle of April, and kept in a dry stove for two months, with 70° and 50° of day and night temperature. When it "breaks" freely after pruning reduce the ball as much as you can, repot in a smaller pot, and give only one more shift in summer, and that not a large shift. Never let it stand out of doors again. A cold dry pit is the place for it till October; and 50° are the highest heat it will bear in winter, as you will see (Vol. XIX., page 290).

HEATING A GREENHOUSE BY HOT AIR FROM A DWELLING-HOUSE FIRE.

HAVING at the suggestion of a friend put up in my small greenhouse (fifteen feet by ten feet) an apparatus for heating, and which is answering very well, I am induced to send it to you, so that others may be benefited by adopting a plan at once remarkably cheap and effective, when only in winter a moderate heat is required. It can only be adopted when the greenhouse is attached to a chimney. An iron box is made, and which forms the back of the grate in the dwelling-house. No openings in the box are made on this side; but on the greenhouse side three holes are made at the bottom for the cold air to enter, and six at the top for the hot air to escape. In these upper holes pipes may be fitted to bring into the greenhouse. The box is made larger than the grate requirement, but opens to its full extent on the greenhouse side, and two small flues are made on the grate side leading to the chimney, so that the hot air may heat the iron box over its whole surface.

This plan has answered admirably with me, with the exception of that terribly destructive night, when I had 4° of frost in, but which I am satisfied I should have avoided if I had put matting outside the glass on the exposed side.—X. L.

THE SCIENCE OF GARDENING.

(Continued from page 252.)

WE have said that the night temperature usually averages from ten to twenty degrees lower than the day temperature. That there are exceptions we are quite aware, but they are extreme exceptions; and where these extremes prevail, the plants subject to them are peculiar and few in number.

For example: We may quote the summers within the arctic circle, when for a few weeks the sun never sets; yet even then a disparity of temperature exists. Thus, one example among many, we find under the date of June 30th, 1832, this entry in Sir J. Ross's "Journal of a Second Voyage to the Arctic Regions." "The sun had a great effect on the snow, and the aspect of the land was hourly changing. At noon the thermometer was at 47°, and at midnight at 32°." Again: July 9th—15th, he says, "The temperature rose once to 50°; but was at the freezing-point at night on most days."

There are, however, climates with temperatures having vast differences between those of their days and nights at the same season. Such a climate is Affghanistan, where, in March, Mr. Atkinson found at mid-day the weather was oppressively hot; yet "after midnight the servants made up a blazing fire, for the north wind blew bitterly cold." Let the gardener remember that that is the native country of the most delicious Grapes and Melons.

Next, for an illustration of widely differing day and night temperatures, let us turn to the climate of tropical Australia. Sir Thomas Mitchell, Surveyor-General of New South Wales, traversed the land for a twelvemonth, and an abstract of his memoranda will be found in the third volume of the "Journal of the London Horticultural Society." Those who cultivate New Holland Plants, will do well to refer to the facts there recorded more fully than in the following epitome:—

"In the end of April (our October), in latitude 28° S., within 4½° of the Tropic, at an insignificant elevation, the thermometer stood at 26° at sunrise, and was as low as 43° at nine P.M.; nevertheless, the country produced wild Indigo, Mimosas, Casuarinas, arborescent Myrtleblooms, and Loranths. A degree nearer the Tropic in May (our November), the thermometer at sunrise marked 20°, 19°, 18°, 17°, 16°, 12°, and on two separate days even 11°! On the 22nd May, the river was frozen, and yet herbage was luxuriant, and the country produced Mimosas, Eucalypti, Acacias, the tropical Bottle-tree (*Delabechia*), a *Calandrinia*, and even a Loranth. On the 23rd of May, the thermometer at sunrise marking 12°, *Acacia conferta* was coming into flower, and Eucalypti, with the usual Australian vegetation, were abundant. On the 30th of May, at the elevation of 1118 feet, the almost tropical *Delabechia* was found growing, with the temperature at sunrise 22°, and at nine P.M. 31°, so that it must have been exposed to a night's frost gradually increasing through 12°. And this was evidently the rule during the months of May, June, and July (our November, December, and January); in latitude 26° S., among *Tristanias*, *Phebaliums*, *Zamias*, *Hoveas*, *Myoporums*, and *Acacias*, the evening temperature was observed

to be 29°, 22°, 37°, 29°, 25°, falling during the night to 26°, 21°, 12°, 14°, 20°; in latitude 25° S., the tents were frozen into boards at the elevation of 1421 feet; the thermometer, July 5, sunk during the night from 38° to 16°, and there grew *Cryptandras*, *Acacias*, *Bursarias*, *Boronias*, *Stenochiles*, and the like. *Cymbidium canaliculatum*, the only orchidaceous epiphyte observed, was in flower under a night temperature of 33° and 34°; that by day not exceeding 86°. These facts throw quite a new light upon the nature of Australian vegetation.

"It may be supposed that so low a temperature must have been accompanied by extreme dryness, and such appears to have been usually the case. Nevertheless, it cannot have been always so; for although we have no hygrometrical observations for June and July, and only four for May, yet there is other evidence to show that the dryness cannot always have been remarkable. In May the hygrometer indicated .764, .703, .934, or nearly saturation, and .596; yet the sunrise temperature was on those occasions 25°, 28°, 30°, and 34°. On the 22nd of May, the grass was white with hoar frost, and then the thermometer was, at sunrise, 20° under canvas, and 12° in the open air; and on the 5th of July, when it rained all day and the tents were 'frozen into boards,' the thermometer sank during the night from 38° to 16°.

"It is probable that this power of resisting cold is connected with the very high temperature to which Australian vegetation is exposed at certain seasons, and this is horticulturally a most important consideration. We find that in latitude 32° S., in January (our July), the thermometer stood eight days successively above 100°, and even reached 115° at noon; that it was even as high as 112° at four P.M.; that in the latter part of February, one degree nearer the line, it was twice 105°, and once 110°; that in March, one degree further northward, it frequently exceeded 100°, and there was not much fall in this excessive temperature up to the end of April. This will be more evident from the following

TABLE OF NOON-DAY TEMPERATURES.

Lat.	Date.	Average Temperature.	Maximum	Minimum
deg.			deg.	deg.
29 S.	Nov., Dec.	Average of 3 Observ.	102	103
32 S.	Jan., Feb.	" 18 "	97½	115
31 S.	Feb., March	" 17 "	90	110
30 S.	March . .	" 20 "	95	105
				84

"At this time the dryness was also excessive. Even such heats as these do not, however, destroy the power of vegetation, for we find in the midst of them all sorts of trees in blossom, a few bulbs, and even here and there (in damp places, no doubt), such soft herbs as *Goodenias*, *Trichiniums*, *Helichrysus*, *Didiscus*, *Teucrium*, *Justicia*, herbaceous *Jasmines*, *Tobacco*, and *Amaranths*.

"During these heats the night temperature seldom remains high. Sometimes, indeed, the thermometer was observed as much as 88°, and once even 97° at sunrise, the average noon heat of the month being 97½°, but generally the temperature is lower. Thus:—

		Temperature occasionally at Sunrise.	
Nov. and Dec.,	averaging 102° at noon	62°, 58°, 61°.	
Jan. and Feb.	" 97½° "	61°, 60°, 59°, 47°, &c.	
Feb. and March	" 90° "	61°, 59°, 54°, 48°, &c.	
March	" 95° "	68°, 55°, 51°, 47°, &c."	

Intimately connected with the salutary alternations of day and night temperature, is the proper maturing of the shoots and other permanent growth of plants during the year.

Mr. Barnes, one of the best practical gardeners of the day, has very justly observed that there is more judgment required in thoroughly ripening the wood of forced fruit trees than in ripening their fruit. It is too generally an error to think that when the fruit is off no further trouble is required; that the wood has got to be hardened,—and that no other care is necessary until the times for pruning, forcing, &c., come round. This is a mistake fraught with failure. When the fruit is off, the whole vegetative power of the tree is employed; until the leaves begin to fall, in imbibing and elaborating the sap which is to be the source from whence next year's growth and produce are to arise. The hurry some gardeners are in to expose the forced trees to the full influence of the air, and allowing them to remain without the shelter of glass at night, after the arrival of frosts, are all errors, sources of injury and loss. A far more judicious plan is

to promote the lengthened vigorous vegetation of the trees, by sheltering them during inclement weather; by not reducing the temperature of the house suddenly; by giving liquid manure occasionally, and never allowing the trees to be subjected to a freezing temperature. It will be found, generally, that the forced tree that is kept longest vegetating healthily after its fruit is gathered will be the most vigorous next season.

The experiments of Harting and Munter upon Vines grown in the open air, and those of Dr. Lindley upon Vines in a hothouse, coincide in testifying that this tree grows most during the less light and cooler hours of the twenty-four. But the hours of total darkness were the period when the Vine grew slowest. This, observes Dr. Lindley, seems to show the danger of employing a high night temperature, which forces such plants into growing fast at a time when Nature bids them repose.

That the elevation of temperature at night does hurtfully excite plants is proved by the fact, that the branch of a Vine kept at that period of the day in a temperature not higher than 50°, inhales from one-sixteenth to one-tenth less oxygen than a similar branch of the same Vine during the same night in a temperature of 75°. The exhalation of moisture and carbonic acid is proportionably increased by the higher temperature.

The evidence of the Vine's growth being most rapid during the hours of diminished light, but not of entire darkness, is curiously coincident with the observation of Moses, that, though fruit is brought forth by the sun, yet that the plant itself is put forth by the moon (*Deut. xxxiii. 14*).

It must not be supposed, however, by the gardener that all plants make their greatest growths uniformly at the same period of the twenty-four hours, nor even that the same individual grows most every day during the same hours. So far is this from being the fact, and so irregular is every plant in the amount and period of its daily extension, that we think Dr. Lindley was quite right when he thus summed up his report of a series of experiments made in the Chiswick Garden:—"It does not appear satisfactorily that the varying rates of elongation are, under the circumstances of the experiments now detailed, dependent, to any considerable extent, upon fluctuations of temperature, light, or moisture. On the contrary, it seems almost certain that some other powerful agent is in operation, the nature of which we have, at present, no means of ascertaining."—(*Horticultural Society's Trans., 2nd Series, iii., 113.*)

The following table gives the epitome of the results of those experiments. The amount of growth merely gives the increase in length in inches and decimal parts of inches:—

In a curvilinear-roofed Stove. Temperature during the day 73°; during the night 65°.					In the open air before a vinery in a sheltered situation.		
	6 A.M. to noon	Noon to 6 P.M.	6 P.M. to 12 P.M.	12 P.M. to 6 A.M.	Morning.	After-noon.	Night.
Willow.....	11·13	10·42	9·71	9·37	4·81	5·13	3·77
Fig	4·88	5·04	5·23	4·37	3·16	2·12	1·63
Vine	17·24	17·21	16·02	18·13	2·04	2·16	2·34
Passion-Flower	13·41	22·24	18·20	18·00			

The period over which these experiments extended was from the 1st of March to the 14th of August, 1843.

The period over which these experiments extended was the month of July, 1844.

(To be continued.) —J.

GRAFTING FRUIT TREES.

HAVING at page 260, in "A Chapter for the Cottager," promised to give a little advice on grafting, I hereby redeem the promise; not with a view of explaining anything new in that way, for the subject has been divested of its once mysterious importance, when the practitioners of a fruit nursery used to sharpen their knives and go after scions, and other things that were not wanted, immediately any passer-by curious enough to look at them stopped to do so. The day of monopolising secrecy is long gone by; and whip or tongue-grafting, cleft and crown-grafting, and the other modes, are known to every one who takes the trouble to inquire into them. But there is something more wanted to know than the mere manipulative part of the business. When to do it seems as important a part of the affair as how to

do it; and I am not certain but that some of the smart young men who pride themselves as being very expert in this work are not often wrong in the season when it is done. My ideas respecting this have altered very much in the last ten or a dozen years; and that not from what I have seen or heard of the practice of great men eminent in their calling, but from that of plain ordinary labourers, who do this work in Kent with as much success as any class of men I know. Perhaps some of them have as much practice, too, as some nurserymen; for many fruit-growers raise their own trees, and in a district where there are hundreds of acres of orchards there is plenty of that work to do.

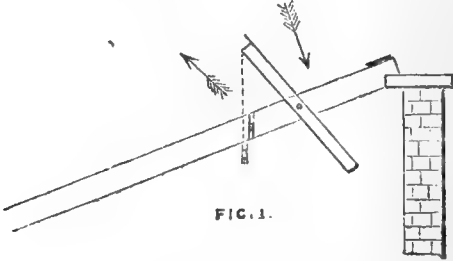
It is more especially to grafting cut-down trees that I would call attention. This I have seen done in other places in March, and I think old gardening books advise its being done at that time; but here it is more usual to do it in May, experience having proved it to be more successful at that season than earlier. The reason is obvious: The flow of sap is more vigorous; and, entering the scion at once and continuously, prevents that drying up so fatal with the cold north-east winds in the more early part of the spring. In Kent it is not unusual to see men grafting as late as the 12th of May, and very successfully: the tree, of course, had been headed down before, and the scions taken off and kept immersed half their length in damp sand. Now there is much more comfort in performing the operation at this time than in the cold withering weather we often have in March. True it is that, with care, some practitioners are tolerably successful at that early season, but there is more trouble in insuring success. I have seen each graft enveloped in a tuft of moss its whole length after being tied and clayed the usual way; and a cut-down Apple tree with many forked tops has an odd appearance when treated so. This moss is also often watered to prevent the drying winds of the time parching up the scion. But this is all a needless amount of trouble, with not so good a result as waiting till the proper time, when the more rapid flow of sap supplies the scion with its proper food at once, and success is more certain. Crown-grafting is more suitable for late work than tongue-grafting; nevertheless, the latter kind of grafting may often be done much later than it now is, and with quite as much success.—J. ROBSON.

TOP VENTILATION.

I SEE no demur in your pages to the doctrine recently laid down by Mr. Rivers that top ventilation is superfluous. It may be so, but I should be sorry to be without it; and Mr. R. can hardly reconcile this idea with the description of "the best house of the kind," (referring to "lean-to" orchard-houses, where "every alternate square next the top is framed on hinges opening upwards,") given in that enticing book of his (page 12, 5th edition).

From reading his own remarks I was convinced that, in a long "lean-to," top ventilation was a necessity; and when building my house last winter I contrived and adopted the following plan, which, as it has answered perfectly, you may possibly think worth communicating to any inquirers on the subject.

Every alternate square next the top is framed (size 31 by 34); but, instead of being hinged, is pivoted just sufficiently out of the centre to cause the top edge of the frame to hang downwards when left to itself (*fig. 1*).



In this position what is generally known as "the-up-and-down-cast" system of ventilation has full play: the rarefied air escapes in the direction of the arrow pointing upwards, and fresh colder air descends in the direction of the other arrow. And in wet weather, or when showers may be expected, and the temperature is still comparatively high; if the pivoted frame be brought nearly horizontal, the bottom edge being very slightly lower than the top, there will still be an aperture of some three to six inches (varying according to the angle of the roof) at each edge of the frame; so that ventilation still proceeds in the same manner

though in a less degree, while—as the top edge of the frame is protected by the ridge-board, and the glass projects about an inch over the bottom edge of the frame—no rain whatever can enter the house.

The amount of ventilation is regulated in this way: A quarter-inch wire *a* is suspended on pullies *b* from the rafters. A light chain *c*, about eighteen inches long, is fastened to the bottom edge of each frame, passes under pullies *d*, fixed to a crosspiece *e*, and is fastened by its other end to the wire (*fig. 2*). One end of

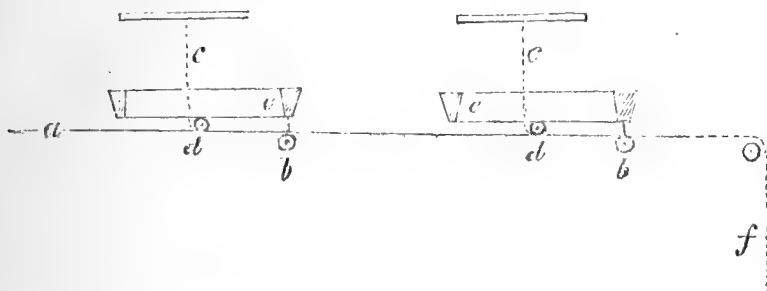


FIG. 2.

the wire terminates in a piece of rather stronger chain *f*, which can be secured at any point by placing one of the links over a nail driven into the door-post. On account of the glazed frames being nearly balanced, the slightest effort moves the whole simultaneously. My house is 120 feet long. Half the frames are moved from one end and half from the other, and a pull by one hand is all that is needed to close either set. As far as opening goes, that requires no effort at all; the chain *f* is released, and the top edge of each frame descends by its own gravity. If the frames were made to overbalance the other way, as may seem more natural—that is, with the bottom edge to hang downwards, no top air could be given in wet weather without rain coming in; nor would the roof be watertight even when the frames were closed. The frames, also, when open, as in *fig. 1*, are better defended, by the tension of their chains, from the action of all wind but the north, than they would be if inclined in the opposite direction.

The front of the house, glazed to within twelve inches of the ground, abounds in ventilating openings, and I have shutters at the base of the brick wall at the back also; but I cannot think I should have had the necessary circulation of air without some provision for top ventilation. At any rate I had no red spider last summer, and my trees are now as full of blossom-bud as they were when Mr. Rivers sent them to me in December, 1858; and I think that is the highest praise I can give them. Pivots, wire, light chain, and common iron pullies, are not expensive materials; so that the cost of this plan of ventilation is no great matter. I think it must be cheaper, besides being more efficacious than any arrangement for the simultaneous elevation of lights hinged to the ridge; and it puts less pressure upon the rafters than the mechanism exerts which is sometimes applied to the opening of hinged lights.—A CHESHIRE SUBSCRIBER.

HARDY FRUITS IN FEBRUARY.

It is said that “coming events cast their shadows before,” and the gardener knows this fact as well as the moralist. When we see the Snowdrops, totally regardless of the storms over their heads, hanging out their pensile bells in bold defiance; Cowslips, Crocuses, the Coltsfoot, with some other earlies, bursting their icy chains, thereby giving full evidence that they have had their sleep out, and anticipate, as it were, the advent of spring; then may the gardener fully awake too. He will begin to think of his dormant enemies awaking, and through summer evading all vigilance, unless timely applied; and the old maxim of “take time by the forelock” becomes a predominant feeling.

One of the first considerations is, What is the present position of business in its relation to the past winter? On retrospection we shall find that it has been one to impede the nick-nackeries of trained fruit trees; for who likes to stand pruning, training, and dressing fruit trees with a thermometer telling of 12° to 22° of frost? So that by Valentine’s-day many will begin to perceive much business a-head to threaten them.

I may speak of the character of the past summer as to its influence on hardy fruits. It has had a most beneficial influence on the wood of trees; much heat, much solar light: these are

the two great agents in promoting fructification. But there is another matter which must be taken into account—as great a promoter of fruitfulness in the ensuing year as any as to mature trees which have done some work, and that is the scanty crops produced the last season. Under the above circumstances the pruner will have less labour, and the wood will be short-jointed, and, of course, well ripened. But one great point of garden economics is to have the deck ready for action, as seamen say; which is, to take care that no genuine winter business is in arrears at the end of the month, or let us say by the middle of March. Pruning, training, nailing, cleansing, and a consideration as to garden-walls, must be held; for dressing them is not enough observed, although as old as the time of Speechly. I think we have been told that he had a practice of obtaining all the soap-suds from an extensive laundry, and syringing with an engine all his walls. And why not such, in combination with some kind of grouting, adding sulphur, &c.? But, be this as it may, our kitchen gardens are such a nursery for all insect rascals, which love warmth and a variety of good keep, that nothing but a clean system, an aiming at extirpation, can possibly keep those gardens respectable and profitable. During this month, therefore, the brush should be at work on the stems of infested or suspicious trees, and the remedies at present known and proved—which latter is the main thing—applied with an unsparing hand.

Gishurst Compound has carried a name; but according to the old saying, “Good wine needs no bush.” I do not say this to prejudice the Compound; but we know retrospectively what a host of remedies have sprung up even in fruit-tree nostrums, and how they have, in the main, given place to the well known sulphur, soft soap, tobacco water, &c. But from such high names as Mr. Rivers and others attached to its recommendation every amateur, at least, should give it a trial. I think Mr. Wilson said that nearly $\frac{1}{2}$ lb. to a gallon might be applied to the wood of trees in a rest condition—that is, devoid of foliage. But for the scale, soft soap, 4 ozs. or 5 ozs. to the gallon, I have found efficacious, applied twice at a week’s interval. Sulphur is the best thing I know of for red spider, and tobacco water for the aphides. These are the great enemies of gardeners.

But there is yet another matter which must be attended to, and that is the planting of fruit trees, if not performed in autumn. But, for my part, if the work is properly carried out, and the soils put together in a dry state, I should prefer spring. I used to think autumn preferable; but, although plausible arguments may be used in its favour, I do think the preponderance lies on the other side. The advantage said to be of autumn planting lies chiefly in the bottom warmth of the soil; but it must be remembered that although this applies eminently to evergreens, not equally so to deciduous kinds. Evergreens with healthy acting foliage root almost continuously through the early winter; but deciduous trees are far more stationary. Be this as it may, when February arrives, planting, where necessary, should be carried out before the end of the month.

And here I would ask if any one has experience of the endless new seedling Pears which have been raised by our ingenious friends on the other side of the water. They have affixed such euphonious names to them that I doubt we get dazzled with such fine titles. And again, the market-gardeners about London and other places seem to continue to grow old and well-known kinds, for look when we will in the market reports we find the same recurring annually:—*Glou Morceau*, *Winter Nelis*, *Ne Plus Meuris*, *Beurré Rance*, *Louise Bonne of Jersey*, *Beurré d’Amanlis*, *Marie Louise*, &c., and lately, I think, *Joséphine de Malines*. But I do not consider the marketing affair as the whole test of the matter: these men must have bearers, albeit of second-rate quality; for what is a shy-setting Pear to them? What is the use of gathering a score of Pears off some of the best? Such will never pay high rentals. But it is to certain sagacious amateurs we must look a little, and above all to first-rate experienced gardeners, who equally dislike humbug and prejudice.

There is one particular reason for early pruning which I think I have not named, and that is, it makes way for the trainer, tier, or nailer to follow. Now training is rather slow and tedious work, and depends so much on the weather in early spring that every chance should be seized to get it a-head. It is in general colder work than pruning; but those who perform this work should remember that a broad board under the feet makes all the difference. But the facility with which this work is carried out greatly depends on the condition of the materials. Nails

shreds, &c., should be well dressed and sorted in winter; matting or other materials sorted into lengths and characters according to the purposes for which they are intended. R. EBBINGTON.

DEFECTS IN HEATING BY HOT WATER—ZINC PIPES.

I FIND myself in an awkward fix; and like Napoleon to England in his Italian difficulty, I cry to you come and help me out. Mine, however, is not quite an "idea;" and, therefore, I feel some degree of confidence that you will be able to lend me a hand, or, as we dwell so wide apart, perhaps I should rather say an "idea," which will clear away all my difficulties. Now, to the point. About a month or so ago I had a cold pit built, and as we are exposed to frequent rains, I employed our Jack-of-all-trades, who, in his mild way, is a kind of Weeks—and something more, perhaps, he would say, since he can make a kettle which, I presume, would "fix" the Chelsea worthy. Well, as I said, I directed him to put some two-inch zinc (the name of this metal makes the money in my pocket rattle) pipes into it, and connect them with the boiler which warms an adjoining greenhouse. He did so, and the result is, that I cannot get the pipes in the pit to warm at all; and they, like the dog in the manger, do their best to prevent the other pipes in the greenhouse from doing their duty, as of yore. Now, to describe as well as I can, the pipes, &c., in order that you may be enabled to detect the error (for I suppose there is one somewhere). The pipes are connected with the commonest form of boiler. The pipes from the pit (one-inch pipes) are screwed into the iron plate which covers the boiler, and the return-pipe is immersed about six inches, but the flow-pipe is only screwed into the plate, and does not penetrate deeper. Those which warm the greenhouse are of two inches diameter, and rise somewhat above their neighbours. Whether they are both immersed or not I cannot say, as I was from home when the apparatus was put together. The steam-pipe of the pit is at the back, fastened to the wall against which the pit is built. I could not conveniently have it elsewhere. Now, pray tell me what is wrong.

Before concluding this, allow me to give a word of warning on the use of zinc as a *cheap* (?) substitute for lead. Last February I put violent hands on a picture-case belonging to my wife, and which had contained the beloved portrait of her uncle, and had it lined with zinc, and converted into a tank. It answered very well for a time, but finding the house always full of steam latterly, I determined to have some pipes connected with the tank to dry off this moisture; and on opening it to do so, my Weeks discovered that the zinc was completely eaten into holes, and all would crumble between the thumb and finger. My economy, of course, resulting in my being obliged to have a new tank, and this time lined with lead. The idea of zinc I took from the *Cottage Gardeners' Dictionary*, under the head of "Rendle's Tank System." Unfortunately these pipes in the pit were in their place, or I should have had iron. However, the warning, I trust, will save some other person's pocket. *Verbum sat sapienti.*—A SUBSCRIBER.

[We should like to have known the size of your greenhouse, and the size of your pit, and dimensions of your kettle. Perhaps we may guess at the cause. First: The boiler may be too small to heat both places effectually. Second: Have you a supply-cistern higher than the top of the boiler, and highest point of the pipes? Third: It would be better if the return-pipes went nearer the bottom of the boiler. With the supply-cistern as hinted above, the boiler and all the pipes must be always full; but when both pipes are so close to the top of the boiler, the heated water will enter into both, and each will form in itself a flow and return, and this will not be well done in such small pipes as two-inch. In a small boiler the difference of six inches in depth will not prevent the above effect, as the water for that depth will be nearly of the same temperature. Fourth: If there were merely surface of boiler sufficient for the greenhouse before, the addition of more water would give the boiler more to do. Have you an air-pipe or an open supply-cistern in the greenhouse? Fifth: If the position of the pipes as given be correct, rising abruptly from the boiler, and then declining considerably, as they go into the houses, we should not be surprised if the heat did not pass these high points easily, unless you had a small air-pipe there. Where there is no open cistern in these cases, our practice leads us to the conclusion that the flow-pipes should rise gently and regularly to the extremity, and not rise first and then fall.

Sixth: We are doubtful whether the figure on the left side represents a section of the pit, or the return heating-pipe,—if the latter, the whole difficulty is explained,—as such pipe descends so much below the boiler and fireplace. Under no circumstances do we like to have pipes below the boiler. It requires great trouble, and many little matters to get them to act. In your case we should expect to get no circulation. From these you may find the cause of failure; and, if not, if you describe more minutely, or give us a plan of the pipes, as respects height, &c., we will do what we can to oblige you; but we suspect that some of these will meet your case. We do not approve, in general, of two-inch pipes. If the top of your boiler is at all exposed to the fire, then it would have been necessary to have had a yard or four feet, at least, of iron pipe, as zinc will not stand fire heat. We would also disapprove of zinc in a pit where the pipes were to be covered with earth, or to rest even upon earth; but if they stand clear off walls and soil, and are supported on wooden brackets, both zinc pipes and galvanised iron will last a long while, if the water is not particular in possessing a salt or acid that acts quickly on zinc. We have known cisterns last a long time, and we have known others quickly eaten through just as you describe. It is well known that even lead pipes soon decay in some clay soils, if not well surrounded with ashes or charcoal dust. We feel, however, much obliged for the result of your experience, as we by no means think that first cheapness is identical with real economy. Iron pipes, in the long run, are, no doubt, best; but in small greenhouses we would not hesitate to use either galvanised iron or zinc, or even tin. We should like to hear how you and your coadjutor master your difficulties.]

TREATMENT OF CAMELLIAS AFTER BLOOMING.

"A CONSTANT SUBSCRIBER" has twenty-four Camellias, not very large plants, about six or eight years old, and very good kinds. They are very backward this season—only two have bloomed, and the others appear as though they would not do so for two months, and not many buds on them. The conservatory in which they are placed has a north-east aspect. Would it be well to wait until they have all done blooming, to remove them to a close, warm temperature in the pit? In this case I suppose they would be late again next year, and I like to have them in bloom in December and January; or would it be advisable to sacrifice the flowers of some for this season, and put them sooner into the pit where they might have a little heat? They had none last year, being only kept in the cool greenhouse until they had done flowering, and were then placed under a north wall until housed for the winter.—E. H.

[Your plants being kept in a house with a north-east aspect, and then placed on the north side of a wall, had not excitement enough to make wood and ripen the buds. If you could place them in the pit by March, it will be soon enough. Syringe freely, keep rather close, and when the buds begin to set at the points of the shoots, give more air and full exposure to light, and you may have bloom from December and onwards.]

COVERING A WALL WITH IVY.

In replying to a correspondent, "J. F. C.," in your No. 591 on the subject of Ivy to cover brickwork, many useful hints are given to those few persons who are willing to devote great pains and time in perfecting the work. I would merely add a suggestion as to my own practice upon a wall, sixty to seventy yards long, which I covered completely about seventeen years ago, and which always looks tidy and well, though I cannot say I devote much labour to minute points. About March I clip off almost every leaf, leaving only bare stalks for a short time, when the young leaves show themselves, avoiding the bad appearance of foliage in every stage of decay and colour; a uniform bright green showing on every part of the wall, and so continuing throughout the year, with no litter from falling leaves.—H. T.

HEATING A VERY SMALL GREENHOUSE.

HAVING but recently come into occupation of a garden, with the addition of a small greenhouse, 13 feet by 8 feet, from which the former tenant had removed all vestiges of pipes, &c., for heating, I was at some loss to know how to preserve the few

plants I placed there from the late frost. The plan I adopted was to put in two casks filled with boiling water (or nearly so) bunged up tight, and in the morning to change one of them while the weather continued so severe, and then one or both again at night as the temperature required.

Perhaps this plan might suit your inquirer, "A. R.," in your number for January 24th.—A. W.

AN EVERGREEN FENCE FOR A SCREEN.

I WANT to make an evergreen fence for a screen, six or seven feet high and four or five yards long. What will do it in the shortest time and most effectually?—A CONSTANT READER.

[What would make an evergreen fence in the quickest time will not make it the most effectually without going to a great expense. Plants of the common Yew from six to seven feet high would do what you want in two days, but the price would be just as high. Privet is the fastest growing evergreen for a fence, and can be had from four to five feet high, and higher in some nurseries. A fence and a screen may be very different, however; all fences are screens, but all screens are not fences. A most effectual screen may be made at once to make a lasting hedge or fence with Ivy, thus: First make a strong wooden fence—such wood as will last the longest; next make a good rich border on one or both sides, such as would do for out-of-door Grapes; and lastly plant it with Ivy plants, one foot apart, and one foot higher than the woodwork. After planting, nail up the Ivy, and double the top of the plants over the top; water as for Celery the first summer; and you will have a green fence and a capital screen. Anything of this kind, in any part of the country, up to ten feet, could be made at once by London pot-Ivy had down by rail, if such Ivy is not to be had in the neighbourhood. The grand secret of such fences is out of sight and down in the border—that is, the rich soil.]

HOTHOUSES FOR THE MILLION.

IN your very useful periodical for January, page 277, a correspondent, "T. R.," makes allusion to a previous article furnished by him, on "Houses for the Million," which, unfortunately, I did not see. He says, "these houses may be very convenient, but are not cheap. A new method of making lights, very recently invented, will, in that respect, throw them into the shade." I certainly do not know to what new invention he refers; but I really think the simple and most effective system adopted by Sir Joseph Paxton, can scarcely, in point of cheapness, be surpassed, and I shall always be most happy to furnish your subscribers any information they may wish.—SAML. HEREMAN.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 277).

PLUMS.

Columbia Gage. See *Columbia*.

Cooper's Blue Gage. See *Blue Gage*.

COOPER'S LARGE (*Cooper's Large American*; *Cooper's Large Red*; *La Delicieuse*).—Fruit above medium size, oval, considerably enlarged on one side of the suture, which is broad and shallow. Skin pale yellow on the shaded side, and dark purple on the side next the sun, covered with numerous brown dots. Stalk an inch long, inserted in a small cavity. Flesh yellowish-green, juicy, with a rich and delicious flavour, separating from the stone. Shoots smooth. Ripe in the end of September and beginning of October.

CORSE'S ADMIRAL.—Fruit large, the size of Red Magnum Bonum; oval, considerably swollen on one side of the suture, which is deep and well defined. Skin light purple, dotted with yellow dots, and covered with pale lilac bloom. Stalk an inch long, inserted in a small cavity. Flesh greenish-yellow, brisk and juicy, pleasantly flavoured, and adhering closely to the stone. Shoots downy.

A preserving plum. Ripe in the end of September.

CORSE'S NOTA BENE.—Fruit large, round. Skin brownish-purple, with somewhat of a greenish tinge on the shaded side, and thickly covered with pale blue bloom. Stalk half an inch long, inserted in a small round cavity. Flesh greenish, firm and juicy, with a rich, sugary flavour, separating from the stone. Shoots smooth.

A dessert plum. Ripe in the middle and end of September.

Damas Blanc. See *White Damask*.

Damas Blanc Gros. See *White Damask*.

Damas Blanc Hâtif Gros. See *White Damask*.

DAMAS DRONET.—Fruit small, oval, and without any apparent suture. Skin bright green, changing to yellowish as it ripens, covered with a very thin light bloom. Stalk half an inch long, slender, inserted in a narrow and rather deep cavity. Flesh greenish, transparent, firm, very sugary, and separating freely from the stone. Shoots smooth.

A dessert plum. Ripe in the end of August.

Damas d'Italie. See *Italian Damask*.

DAMAS DE MANGERON (*Mangeron*).—Fruit above medium size, round, and inclining to oblate, without any apparent suture. Skin adhering to the flesh, lively purple, strewed with minute yellowish dots, and thickly covered with blue bloom. Stalk half an inch long, slender, inserted in a small cavity. Flesh greenish-yellow, firm, not very juicy, but sugary, and separating from the stone. Shoots smooth.

A baking or preserving plum. Ripe in the beginning and middle of September.

DAMAS MUSQUÉ (*De Chypre*; *Prune de Malthe*).—Fruit small, roundish, flattened at both ends, and marked with a deep suture. Skin deep purple or nearly black, thickly covered with blue bloom. Stalk half an inch long, inserted in a small cavity. Flesh yellow, firm, very juicy, with a rich and musky flavour, and separating from the stone. Shoots slightly downy.

A dessert or preserving plum. Ripe in the end of August and beginning of September.

DAMAS DE PROVENCE (*Damas de Provence Hâtif*).—Fruit above medium size, roundish, and marked on one side with a deep suture. Skin reddish-purple, covered with blue bloom. Stalk half an inch long, inserted in a small cavity. Flesh yellowish-green, sweet and pleasantly flavoured, separating from the stone. Shoots slightly downy.

A baking plum. Ripe in the end of July and beginning of August.

DAMAS DE SEPTEMBRE (*Prune de Vacance*).—Fruit small, oval, marked on one side with a distinct suture. Skin brownish-purple, thickly covered with blue bloom. Stalk half an inch long, slender, inserted in a narrow and rather deep cavity. Flesh yellow, firm, rich, and agreeably flavoured when well ripened, and separating from the stone. Shoots downy.

A dessert or preserving plum. Ripe in the end of September.

Damas de Tours. See *Précoce de Tours*.

Damas Vert. See *Green Gage*.

Damaseen. See *Prune Damson*.

Dame Aubert. See *White Magnum Bonum*.

Dame Aubert Blanche. See *White Magnum Bonum*.

Dame Aubert Violette. See *Red Magnum Bonum*.

DAMSON (*Common Damson*; *Round Damson*).—Fruit very small, roundish-ovate. Skin deep dark purple or black, covered with thin bloom. Flesh greenish-yellow, juicy, very acid, and rather austere till highly ripened, and separating from the stone. Shoots downy.

A well-known preserving plum. Ripe in the end of September.

Dauphine. See *Green Gage*.

La Delicieuse. See *Cooper's Large*.

Dennie. See *Cheston*.

DENNISTON'S SUPERB.—Fruit above medium size, round, and a little flattened, marked with a distinct suture, which extends quite round the fruit. Skin pale yellowish-green, marked with a few purple thin blotches and dots, and covered with bloom. Stalk three quarters of an inch long, inserted in a small cavity. Flesh yellow, firm, not very juicy, but rich, sugary, and vinous, separating from the stone. Shoots downy.

A first-rate dessert plum. Ripe in the middle of August.

DIAMOND.—Fruit very large, oval, marked on one side with a distinct suture, which is deepest towards the stalk. Skin dark purple, approaching to black, and covered with pale blue bloom. Stalk three quarters of an inch long, inserted in a narrow and deep cavity. Flesh deep yellow, coarse in texture, juicy, and with a brisk agreeable acid flavour; it separates with difficulty from the stone. Shoots downy.

One of the best preserving or cooking plums. Ripe in the middle of September.

Diaper. See *Diaprée Rouge*.

DIAPRÉE ROUGE (*Diaper*; *Imperial Diadem*; *Mimms*; *Red Diaper*; *Roche Carbon*).—Fruit large, obovate. Skin pale red, thickly covered with brown dots, so much so as to make it appear of a dull colour, and covered with thin blue bloom. Stalk half an inch long, inserted in a slight cavity. Flesh greenish-yellow, firm, and fine-grained, separating, but not freely, from the stone, juicy, and of a rich, sugary flavour. Shoots downy.

A good plum for preserving, or the dessert. Ripe in the middle of September.

Diaprée Violette. See *Cheston*.

DOWNTON IMPERATRICE.—Fruit medium sized, oval, narrowing a little towards the stalk, and slightly marked with a suture on one side. Skin thin and tender, pale yellow. Flesh yellow, separating from the stone, juicy and melting, with a sweet and agreeable subacid flavour. Shoots smooth.

An excellent preserving plum, but only second-rate for the dessert. Ripe in October.

DRAP D'OR (*Cloth of Gold*; *Mirabelle Double*; *Mirabelle Grosse*; *Yellow Perdrigon*).—Fruit below medium size, round, indented at the apex, and marked on one side by a distinct but very shallow suture. Skin tender, fine bright yellow, marked with numerous crimson spots, and covered with thin white bloom. Stalk slender, half an inch long, inserted in a small cavity. Flesh yellow, melting, with a rich, sugary flavour, separating from the stone. Shoots downy.

A good dessert plum. Ripe in the middle of August.

DUNMORE.—Fruit medium sized, oval. Skin thick, greenish-yellow, becoming of a bright golden yellow when ripe. Stalk half an inch long, inserted in a small cavity. Flesh yellow, tender, juicy, sweet, and richly flavoured, separating from the stone. Shoots smooth.

An excellent dessert plum. Ripe in the end of September and beginning of October.

Early Damask. See *Morocco*.

EARLY FAVORITE (*Rivers' Early Favorite*; *Rivers' No. 1*).—Fruit rather below medium size, roundish-oval, and marked with a shallow suture. Skin deep dark purple, almost black, marked with russet dots, and covered with thin bloom. Flesh greenish-yellow, juicy, sweet, and of excellent flavour, separating from the stone. Shoots smooth.

An excellent early plum, raised by Mr. Rivers, of Sawbridgeworth, from *Précoce de Tours*. It ripens in the end of July; and is deserving of a wall, when it ripens in the middle of the month.

Early Morocco. See *Morocco*.

EARLY ORLEANS (*Grimwood Early Orleans*; *Hampton Court*; *Monsieur Hâtif*; *Monsieur Hâtif de Montmorency*; *New Orleans*; *Wilmot's Early Orleans*; *Wilmot's Orleans*).—Fruit medium sized, round, flattened at the apex, and marked with a suture, which extends the whole length of one side. Skin deep purple, mottled with darker colour, and covered with thin blue bloom. Stalk slender, about half an inch long, inserted in a rather deep cavity. Flesh yellowish-green, tender, of a rather rich flavour, and separating freely from the stone. Shoots downy.

A second-rate dessert plum, but excellent for culinary purposes. Ripe in the beginning and middle of August.

EARLY PROLIFIC (*Rivers' Early Prolific*; *Rivers' No. 2*).—Fruit medium sized, roundish-oval. Skin deep purple, covered with thin bloom. Stalk half an inch long, inserted in a small cavity. Flesh yellowish, juicy, sweet, with a pleasant brisk acidity, separating from the stone. Shoots smooth.

A valuable early plum, ripening in the end of July. The tree is great bearer, and very hardy, rarely ever missing a crop. It was raised by Mr. Rivers, of Sawbridgeworth, from *Précoce de Tours*.

Early Royal. See *Royale Hâtive*.

Early Russian. See *Quetsche*.

Early Scarlet. See *Cherry*.

Early Yellow. See *White Primordian*.

Egg Plum. See *White Magnum Bonum*.

EMERALD DROP.—Fruit medium sized, oval, marked with a deep suture, which is higher on one side than the other. Skin pale yellowish-green. Stalk three quarters of an inch long, inserted in a very shallow cavity. Flesh greenish-yellow, juicy, sweet, and of good flavour, separating from the stone. Shoots smooth.

Ripe in the end of August and beginning of September.

(To be continued.)

TRADE LISTS RECEIVED.

A Catalogue of Choice and Selected Flower Seeds, sold by E. G. Henderson & Son, Wellington Road, St. John's Wood, London, is a book as well as a catalogue, containing a great deal of readable matter and useful information. Those who are curious about such matters will find in it a fine collection of Ornamental Grasses and Gourds of every size, shape, and colour, to the number of one hundred.

Butler & McCulloch's Spring Catalogue of Choice Flower, Shrub, Tree, and Vegetable Seeds, Covent Garden Market, London, is one of those comprehensive catalogues which are becoming a leading feature among seedsmen. It is well got up, and is very comprehensive.

Hooper & Co's Spring Catalogue of Flower, Shrub, Tree, and Vegetable Seeds, Centre Avenue, Covent Garden Market, London.—This is another of those bulky book-like catalogues, which, besides an enumeration of the articles offered for sale, is interspersed with many useful notes.

A Descriptive Catalogue of Choice Annual, Biennial, and Perennial Flower Seeds, by William Thompson, Tavern Street, Ipswich.—This is a very nice catalogue, prepared with great care by one who is evidently possessed of much scientific knowledge. It is arranged according to the natural system of De Candolle.

General Catalogue of Garden and Flower Seeds, &c., by Stuart & Mein, Kelso, N.B., is a good general seedsman's catalogue; and the same may be said of that issued by

James Chartres, 74, King William Street, City, London.

A Catalogue of Florists' Flowers, by George Smith, Tollington Nursery, Hornsey Road, Islington.—This is rich in Fuchsias, Pelargoniums, Geraniums, and Dahlias.

Catalogue of Vegetable and Flower Seeds, &c., by Francis and Arthur Dickson & Sons, 106, Eastgate Street, Chester, is an excellent list, and a specimen of beautiful printing.

Catalogue of Fruit, Forest, and Ornamental Trees and Shrubs; and a Catalogue of Flower Roots, by Andrew G. Daly, Newry.—These contain good selections of the various subjects offered for sale.

TO CORRESPONDENTS.

PLANTS FOR THE WEST INDIES (Epsilon).—Cuttings will not answer; but if you will send rooted plants by steamer, any of the nurserymen who advertise in our columns will pack them in such a way as will insure their safety.

VARIOUS CORRESPONDENTS.—The list of seeds of plants from "Rose" will be attended to next week. Inquiries from "Wis" will also be attended to. We do not recollect the bulb. The best plan to secure the right name would be to send a flower and bulb to our office.

CANNA CULTURE (An Amateur).—The information you require, you will find in our last number in answer to another correspondent.

HOUSE SEWAGE (N. B.).—It will do very well for potted plants, but requires to be very much diluted. It answers admirably for Vines, and for them need not be diluted. It may be also given undiluted to Peach trees after the fruit is set. Our answers must be made of use to all our readers, so we cannot reply by mere references to figures.

MANUALS, &c. (Morville).—Thanks for your commendations. All the subjects you mention will be similarly treated. Pigeons are so already, but the volume is dearer on account of the many illustrations.

PAMPAS GRASS (W. R. E.).—We cannot tell whether your Pampas Grass is a male plant. The male as well as the female plants have spikes of flowers.

Too MANY QUERIES (A Subscriber).—You compel us to be very brief. No *Verbena* exactly like *Cardinal Wiseman* in tint. The Lawton Blackberry has not been proved here yet. *Madame Antonelli* is only one of the best dark *Heliotropes*. The dwarf red Cockscomb gives the largest combs; soil the strongest loam, and the richest dung half and half. The Rock Melon is the hardest. Castor oil comes from the fruit of the *Ricinus*. You may plant the *Ranunculuses* any day this month.

WEST INDIAN YAMS AND EDDOES (An Amateur).—They are not grown in this country for sale, as far as we know; but you might get them at Kew or some other Botanic Garden.

RIBBON PLANTING (A. W. Wills).—You mistake the meaning of planting ribbon-like borders. A garden ribbon must be one yard long at the least, for every quarter of an inch in a lady's ribbon for her bonnet; a circle in the same comparison amounts to a patch only. All ordinary circular-beds ought to have but two kinds of plants; but in a case like yours, a circle in a grass-plot, and a *Deodara* in the middle, four kinds are admissible; and if you look over the last autumn reports of how the circles were planted in Kew and at the Crystal Palace, you will see all the best and all the cheapest ways, and you can choose for yourself. It has been lately said, that bedding is not done better in these extolled places than it is in private gardens, which is true to the letter; but the bother is, that the public are not admitted in droves into private gardens; and until a better school than the best at present turns up, let us make use of what we have, and be thankful. See what Mr. Beaton has said to-day in answer to another correspondent.

RONDELETIA ANOMALA (T. T.).—You must be labouring under a mistake. Mr. Appleby says that he never stated that *Rondeletia anomala* is a good plant to make a specimen. It is of a too straggling habit for that purpose, and, besides that, though it produces numerous flowers in succession, yet it never has a sufficient number open at one time to render it a specimen plant. It, however, does produce very pretty crimson flowers, and pretty in shape, though rather small. Your second year's treatment was right to produce flowers, but the plants require a more liberal treatment in early spring. In March, thin out the shoots, and cut those that are left well in; then give a repotting in loam, peat, and dung, in equal parts, freely mixed with silver sand. Place in a moderately-heated stove, but do not plunge it in a bark-bed. As soon as the pot is filled with roots, repot again in two sizes larger, and now stop the ends of every shoot, and grow the plant on. It will soon fill the pots with roots, and that will check luxuriant growth and induce a flowering state about August and September. Too great heat and too much moisture in the air will spoil the plant, by causing weak-drawn flowerless shoots. It is very possible, that at that late season it might come in for a large collection of stove and greenhouse plants at an exhibition, because then few plants are in bloom, but it cannot be depended on without the care of a very experienced hand. Do your best and let us know the result.

AQUARIUM LEAKING.—If "ELIZABETH," who inquires in your Number of January 31st, concerning the aquaria, will send me her address, I shall be most happy to send her a receipt how to make a cement to stop the leakage complained of.—W. HENRY CHAFFEY, 45, *Sylvestre Street, Hull*.

CYCLAMENS (H. N. E.).—The round-leaved specimen is the true *coum*. The longish-leaf with the light mark is of the *Atkinsii* breed, a cross between *coum* and *Persicum*, to which there seems no end in the difference of the leaves and of their markings. We have the two you sent, and five more kinds from *coum* equally distinct, in bloom just now under glass.

SOWING SOLANUM CAPSICASTRUM (H. B.).—You may either sow on bottom heat, or in a warm greenhouse. The variegated *Veronica speciosa* we do not consider so hardy or so free-growing as the green.

WALTONIAN CASE (J. W. W.).—The Case has been advertised in our columns from the beginning, during the propagating season. We brought it out and established its reputation, but we do not know the price. Write to the maker, "Mr. West, Surbiton, near London, S.W."

PELARGONIUMS (M. P.).—Your selection of Lord Clyde, King of Purples, Peacock, Ariel, Prince of Wales, Princess Royal, Acme, Mrs. Turner, and Spotted Queen, is unexceptionable; but without knowing "your old stock," no one could say how far these selected ones will improve your collection.

FOREIGN SEEDS (A. C. S.).—The best twenty-four are *Acacia taxifolia*, *A. floribunda*; *Bauera humilis*; *Boronia pinnata*, *B. ledifolia*; *Conospermum taxifolium*; *Callistachys ovata*; *Crowea saligna*; *Dillwynia ericifolia*; *Epacris grandiflora*, *E. paludosa*, *E. macrophylla*; *Eriostemon buxifolium*, *E. lanceolatum*; *Grevillea buxifolia*; *Gompholobium grandiflorum*, *G. latifolium*; *Kennedyia rubicunda*; *Mirbelia reticulata*; *Oxylobium cordifolium*; *Podocarpus spinulosa*; *Ponceletia sprengelioides*; and *Pultenaea villosa*.

NAME OF PLANT (M. L. C.).—Your plant belongs to the natural order

Asclepiadaceae, and is called *Gomphocarpus fruticosus*, or the Willow-leaved *Gomphocarpus*. It is a common greenhouse plant, native of the Cape of Good Hope, and comes from seeds readily if they are sown in spring and placed in a gentle hotbed. It is also propagated from cuttings of the young shoots. It is figured in the "Botanical Magazine" for 1813.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

FEBRUARY 29th, and MARCH 1st, 1860. ULVERSTONE. Sec., Mr. T. Robson. Entries close February 11th.

MARCH 15th, 16th, and 17th. CUMBERLAND AND WESTMORELAND. Hon. Secs., Mr. J. J. Lonsdale, and Mr. W. D. Hastwell.

MAY 23d and 24th. BEVERLEY AND EAST RIDING OF YORKSHIRE. Sec., Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

JULY 18th and 19th. MERTHYR TYDVIL. Sec., Mr. W. H. Harris, 142, High Street, Merthyr.

N.B.—Secretaries will oblige us by sending early copies of their lists.

CRYSTAL PALACE POULTRY SHOW.

FEBRUARY 11TH—15TH.

OF this very superior exhibition, which is still open, but closes to-morrow, we can only give the prize-list to-day.

N.B.—The addresses of the Prize-takers and Commended Exhibitors are given alphabetically at the end of the prize-list.

SPANISH.—First, J. Garlick. Second, Mrs. J. C. Hall. Third, P. H. Jones. Fourth, R. Wright. Highly Commended, H. Dawson, Mrs. J. C. Hall, Miss M. L. Rake, T. Sheen. **Chickens.**—First and Second, Miss M. L. Rake. Third, R. Teebay. Fourth, P. H. Jones. Highly Commended, C. Atkins, W. R. Bull, J. H. Craigie, J. K. Fowler, Mrs. E. Lear, W. Moore. Commended, Lady Louisa Thynne, C. Branwhite, J. Dixon, H. Lane, T. Wright. **Hens and Pullets.**—First, H. Dawson. Second, J. K. Fowler. Highly Commended, Miss M. L. Rake, W. J. Woodhouse. Commended, R. Cole, J. Garlick, C. F. Nelson, H. Whittington. **Cock.**—First, R. Teebay. Second, T. Robinson. Third, Miss M. L. Rake. Highly Commended, G. Botham, W. R. Bull, S. Burn, W. Moore, Miss M. L. Rake. Commended, Miss M. L. Rake.

DORKING (Coloured).—First, Captain W. Hornby, R.N. Second, S. Burn. Third, J. Frost. Fourth, J. Drewry. Highly Commended, H. W. B. Berwick, R. Boys. Commended, Dr. J. D. Hewson. **Hens.**—Captain W. Hornby, R.N. Second, W. G. K. Beavington. Highly Commended, H. W. B. Berwick, J. K. Fowler, J. Tester. Commended, R. Boys, H. Lingwood. **Chickens.**—First, Lady L. Thynne. Second, Rev. J. Boys. Third, Hon. W. Vernon. Fourth, C. H. Wakefield. Highly Commended, Lady L. Thynne, Rev. J. G. A. Baker, H. W. B. Berwick, G. Botham, G. Griggs, J. Lewry. Commended, Capt. W. Hornby, R.N., S. Lewry, J. Nightingale, J. Simmons, W. Tester. **Pullets.**—First, G. Chadwin. Second, R. Boys. Highly Commended, Lady L. Thynne, H. W. B. Berwick. Commended, H. Beal, R. Cole, H. Lingwood.

DORKING (White).—First, Capt. J. Beardmore, H.A. Second, H. Lingwood. **Chickens.**—First, R. James. Second, N. Antill. Commended, Capt. J. Beardmore, H.A., Rev. C. Gilbert, J. Keable.

DORKING COCKS (Coloured and White).—First, J. Frost. Second, Capt. W. W. Hornby, R.N. Third, G. Botham. Highly Commended, Lady L. Thynne, R. Boys, W. G. K. Beavington, H. Ranson. Commended, Sir J. Paxton, M.P., Rev. M. Amplett.

COCHIN-CHINA (Cinnamon and Buff).—First, T. Stretch. Second, W. Dawson (Hopton). Third, G. Blythe. Highly Commended, R. W. Fryer, W. Harvey. **Chickens.**—First, H. Tomlinson. Second, Mrs. H. Fookes. Third, T. Stretch. Highly Commended, Rev. G. Gilbert, H. Tomlinson. Commended, Rev. G. Gilbert, J. K. Fowler, Mrs. A. Horsnail.

COCHIN-CHINA (Brown and Partridge-feathered).—First, T. Stretch. Second, C. Felton. Third, P. Cartwright. Highly Commended, P. Cartwright. Commended, J. Cattell. **Chickens.**—First, Miss V. W. Musgrove. Second, J. Cattell. Third, T. Stretch. Highly Commended, P. Cartwright.

COCHIN-CHINA (White).—First, W. Copple. Second, G. Lamb. **Chickens.**—First, A. Peters. Second, G. Lamb.

COCHIN-CHINA COCKS (Coloured and White).—First, W. Copple. Second, H. Ransome. Highly Commended, R. Chase, W. Copple, H. Tomlinson. Commended, H. Fookes, E. Herbert, H. James.

BRABMA POOTRA.—First, R. Teebay. Second, G. Botham. Highly Commended, G. Botham, J. K. Fowler, R. Teebay. **Chickens.**—First, F. Andrews. Second, R. Teebay. Highly Commended, G. Botham, J. H. Craigie, W. Harvey. Commended, C. H. Adames, J. K. Fowler.

BRABMA POOTRA COCKS.—First, J. H. Craigie. Second, W. G. K. Beavington. Highly Commended, W. Harvey. Commended, G. Botham. **GAME (White and Piles).**—First, Rev. G. S. Cruwys. Second, G. Robinson. Third, J. Monsey. Highly Commended, Haigh & Hartley, S. Ridley, R. Tate. **Chickens.**—First, S. Matthew. Second, J. Monsey. Third, H. Corbett. Highly Commended, M. Bateson, W. Newsome. Commended, Messrs. Bullock & Rapson, J. Camm.

GAME (Black-breasted and other Reds).—First, Hon. W. W. Vernon. Second, E. Hanbury. Third, G. W. Moss. Highly Commended, Captain Hornby, R.N., W. Ballard, G. W. Moss, B. Vaughan. Commended, Hon. J. M. H. Major, Rev. G. S. Cruwys, T. T. Burman, G. W. Moss, W. Rogers, R. Tate. **Chickens.**—First and Second, E. Archer. Third, R. R. Sewell, M.B. Highly Commended, W. Ballard, S. Beilby, J. Bradwell, G. Cargay, W. Dunning, E. Hanbury, G. Lingard, jun., G. W. Moss, Mrs. H. Sewell, S. T. Smith, R. W. Wilson. Commended, S. T. Smith.

GAME (Blacks and Brassy-winged, except Greys).—First, G. Hellewell. Second, W. Ballard. Third, W. Dawson (Sellyoak). Commended, W. Dunning. **Chickens.**—First, W. Dawson (Sellyoak). Second, W. Ballard. Third, Messrs. Bullock & Rapson.

GAME (Duckwings and other Greys and Blues).—First, Hon. W. W. Vernon. Second, H. E. Porter. Third, J. Wright. Highly Commended, S. Matthew. Commended, W. Ballard, W. Dawson (Sellyoak). **Chickens.**

—First, S. Matthew. Second, J. Hindson. Third, J. Wright. Highly Commended, T. Hill, jun. Commended, J. Firth.

GAME COCKS.—First, W. Cox. Second, G. W. Moss. Third, Hon. W. W. Vernon. Highly Commended, Rev. T. L. Fellowes, Capt. W. Hornby, R. N., J. M. Haker, W. Ballard, J. Bradwell, J. B. Chune, S. Field, J. Hindson. S. Matthew, H. E. Porter. Commended, Rev. G. S. Cruwys, J. Bradwell.

HAMBURGH (Gold-pencilled).—First, W. H. Dyson. Second, J. Martin. Third, Messrs. Carter & Valiant. **Chickens.**—First, J. Munn. Second, R. Oxley. Third, W. C. Worrall. Highly Commended, C. Catt, J. Munn, Mrs. Pettat. Commended, Rev. T. L. Fellowes, C. Catt, J. Church, J. Lowe.

HAMBURGH (Silver-pencilled).—First, Miss A. Keable. Second, Rev. J. A. Briggs. Third, Master E. E. Keable. Highly Commended, R. Oxley. **Chickens.**—First, Miss A. Keable. Second, F. Buckland. Third, Rev. J. A. Briggs. Highly Commended, R. James.

HAMBURGH COCKS (Gold or Silver-pencilled).—First, E. A. Wilkinson. Second, D. Harding. Highly Commended, W. H. Kerr. Commended, Rev. J. Bowden, Rev. F. B. Pryor, W. Banks, C. Catt.

HAMBURGH (Gold-spangled).—First, W. Kershaw. Second, W. R. Lane. Third, W. Banks. Highly Commended, Rev. T. L. Fellowes, J. B. Chune, W. R. Lane. Commended, I. Davies. **Chickens.**—First, W. C. Worrall. Second, R. Tate. Third, W. R. Lane. Highly Commended, W. Banks, I. Davies.

HAMBURGH (Silver-spangled).—First, R. Teebay. Second, S. Robson. Third, N. Marlor. Highly Commended, J. Dixon, W. Ludlam. **Chickens.**—First, Messrs. Bird & Beldon. Second, Capt. J. Beardmore, H. A. Third, J. Robinson. Highly Commended, H. Beal, G. Cargay, P. P. Cother, J. Dixon, G. Johnson. Commended, Miss K. Miller, Mrs. Pettat.

HAMBURGH COCK (Gold or Silver-spangled).—First, W. C. Worrall. Second, Mrs. Pettat. Highly Commended, H. W. B. Berwick, Messrs. Haigh & Hartley, W. R. Lane, D. Minter.

POLISH (Black with White Crests).—First, Mrs. Robinson. Second, T. Battye. Highly Commended, T. P. Edwards, G. S. Fox, G. Ray. Commended, Lieut.-Col. Clowes, J. Dixon, G. Ray.

POLANDS (Golden).—First, Mrs. Pettat. Second, G. S. Fox. Commended, G. C. Adkins, J. Dixon.

POLANDS (Silver).—First, G. C. Adkins. Second, G. S. Fox. Highly Commended, Lieut.-Col. Clowes, G. C. Adkins, J. Dixon. Commended, Lieut.-Col. Clowes, W. Dawson (Selly Oak), Mrs. Pettat.

POLISH COCKS.—First, A. Smith (Southsea). Second, F. Hardy. Highly Commended, G. C. Adkins, P. H. Jones.

MALAY.—First, A. G. Brooke. Second, J. Rumsey. Commended, J. J. Fox. **Chickens.**—First, J. Rumsey. Second, A. G. Brooke. Highly Commended, A. G. Brooke.

ANY OTHER DISTINCT BREED.—First, W. R. Lane. Second, W. Chaney. Third, Mrs. E. St. John. Fourth, W. Dawson (Hopton). Highly Commended, Lieut.-Col. Clowes, Herr Carl Emel Wolf, C. Coles. Commended, J. Scott, H. M. Hitchcock, Hon. W. W. Vernon.

BANTAMS (Gold-laced).—First, M. Leno, jun. Second, Rev. G. F. Hodson. Highly Commended, Rev. J. Bowden, Rev. G. S. Cruwys. Commended, T. H. D. Bayley, J. Crane, S. Ridley.

BANTAMS (Silver-laced).—First, T. H. D. Bayley. Second, M. Leno, jun. Commended, Lady Julia Cornwallis, G. Bradwell.

BANTAMS (White).—First, G. C. Adkins. Second, Rev. P. W. Storey. Highly Commended, G. C. Adkins, W. Harvey, H. Lee, S. Ridley. Commended, J. Monsey.

BANTAMS (Black).—First, W. C. Worrall. Second, G. Bradwell. Highly Commended, J. Cattell, T. D. Chipchase, G. Finch. Commended, W. H. Kerr.

BANTAMS (any other variety).—First and Second, W. S. Forrest. Highly Commended, W. W. Boulton, T. H. D. Bayley, J. Monsey, J. S. Walker, W. C. Worrall. Commended, R. Smith, G. Finch, W. Harvey, J. E. Price, T. D. Chipchase.

GESE (White).—First, W. Mansfield, jun. Second, T. Williams.

GESE (Grey and Mottled).—First, J. K. Fowler. Second, F. Edwards. Highly Commended, E. L. Betts. Commended, Mrs. E. Herbert.

DUCKS (White Aylesbury).—First and Second, J. K. Fowler. Third, G. Hanks. Highly Commended, E. T. Bennett, W. Mansfield, jun. Commended, J. Buckley, J. K. Fowler, R. James.

DUCKS (Rouen).—First, W. G. K. Breavington. Second, J. H. Brakinridge. Third, J. K. Fowler. Highly Commended, W. G. K. Breavington. Commended, W. R. Rose.

DUCKS (Black).—First, J. J. Fox. Second, Rev. F. B. Pryor. Third, J. K. Fowler. Highly Commended, C. Baker, G. S. Sainsbury. Commended, S. Burn, R. James.

DUCKS (any other variety).—First and Second, C. Baker. Third, J. Dixon. Highly Commended, T. Keable, T. H. D. Bayley, W. Dawson (Hopton).

TURKEYS.—First, T. Williams. Second, J. K. Fowler. **Poults.**—First, Rev. T. L. Fellowes. Second, J. Smith. Third, Mrs. C. Marshall. Highly Commended, J. K. Fowler.

PIGEONS.

POUTERS OR CROPPERS (Cocks of any colour).—First, Master McGregor Rake. Second, G. C. Adkins. Third, W. Cannan. Highly Commended, W. B. Date. (Hens of any colour).—First and Third, Master McGregor Rake. Second, W. Cannan. Commended, F. G. Stevens.

CARRIERS (Cocks of any colour).—First, G. Crocker. Second, W. McFarlane. Third, S. Betty. Highly Commended, J. F. Mortimer. (Hens of any colour).—First, G. Crocker. Second, Master McGregor Rake. Third, W. J. Square. Highly Commended, W. Cannan (This class is commended by the judges).

ALMOND TUMBLERS.—First, Master McGregor Rake. Second, E. A. Lingard. Third, W. Cannan. Commended, W. B. Date.

DRAGONS (Blue).—Prize, G. F. Treadaway. Highly Commended, H. M. Simmonds. Commended, F. White. (Any other colour).—Prize, F. G. Stevens. Highly Commended, G. C. Adkins. Commended, G. F. Treadaway.

SHORT-FACED MOTTLES (Black).—Prize, F. C. Esquilant. (Red).—Prize, F. G. Stevens. (Yellow).—Prize, S. Millin.

SHORT-FACED BALDHEADS (Black).—Prize, S. Millin. (Blue).—Prize, M. Wicking. Highly Commended, F. C. Esquilant. (Red).—Prize, J. W. Edge. (Silver).—Prize, J. W. Edge. (Yellow).—Prize, M. Wicking.

SHORT-FACED BEARDS (Black).—Prize, F. C. Esquilant. (Blue).—Prize, Master McGregor Rake. (Red).—Prize, E. Archer, jun. (Silver).—Prize, W. Squire. (Yellow).—Prize, F. C. Esquilant.

SHORT-FACED TUMBLERS (Black).—Prize, F. C. Esquilant. (Blue).—

Prize, F. C. Esquilant. (Red).—Prize, S. Millin. Highly Commended, J. Percivall. (Yellow).—Prize, F. Esquilant.

JACOBINS (Black or White).—Prize, Master McGregor Rake. (Red).—Prize, M. Wicking. (Yellow).—Prize, Master McGregor Rake.

OWLS (Blue).—Prize, C. L. Sutherland. Commended, G. C. Adkins. (Silver).—Prize, M. Wicking. Highly Commended, G. C. Adkins. (Yellow).—Prize, M. Wicking. (Black or White).—Prize, S. Millin. Commended, Master McGregor Rake.

NUNS (Black).—Prize, Master McGregor Rake. Commended, J. C. Brierly. (Red).—Prize withheld. (Yellow).—Prize, M. Wicking.

TURBITS (Blue).—Prize, Master McGregor Rake. (Red).—Prize, M. Wicking. (Yellow).—Prize, M. Wicking. (Black or any other colour).—Prize, G. C. Adkins.

FANTAILS (Black).—Prize, G. Goore. Highly Commended, G. C. Adkins. (Blue).—Prize, F. A. Lavender. (White).—Prize, Miss J. Milward.

BARBS (Black).—Prize, Master McGregor Rake. Highly Commended, P. H. Jones. Commended, R. W. Fryer. (White).—Prize, W. Cannan. (Yellow).—Prize, F. G. Stevens. Commended, P. H. Jones. (Red or any other colour).—Prize, Master McGregor Rake.

MAGPIES (Yellow).—Prize, M. Wicking. (Black).—Prize, Master McGregor Rake. (Red, or any other colour).—Prize, S. A. Elliott.

TRUMPETERS.—Prize and Highly Commended, Master McGregor Rake.

SPANISH AND LEGHORN RUNTS.—First, E. A. Lingard. Second, W. Cannan. Highly Commended, Charles Baker. Commended, Carn Baker.

ANY OTHER VARIETY.—Prize, J. Bailey, jun., M. Wicking, W. Hewett, jun. Highly Commended, C. Dames. Commended, Rev. C. R. Pettat.

INDEX.

Adames, C. H., Birmingham; Adkins, G. C., The Lightwoods, Birmingham; Amphlett, Rev. M., Church Lench Rectory, near Evesham; Andrews, F., Coxbridge, Farnham, Surrey; Antill, N., Portsea, Hants; Archer, E., Malvern; Archer, E., jun., 1, Westbourne Villas, Forest Hill; Atkins, C., Sewer Cottage, Thames Bank, Pimlico.

Baily, J., jun., 113, Mount Street, London; Baker, Charles, 3, Half Moon Passage, Gracechurch Street, London; Baker, Rev. J. G. A., Old Warden, Biggleswade; Baker, Carn, The Pheasantry, Beaufort Street, King's Road, Chelsea; Ballard, W., Woodcote Lodge, Leamington; Banks, W., Weston House, Runcorn, Cheshire; Bateson, M., Beverley, Yorkshire; Battye, T., Holmbridge, Holm-firth; Bayly, T. H. D., Ickwell House, near Biggleswade, Beds; Beal, H., Wexham, Slough; Beardmore, Capt. J., Uplands, Fareham, Hants; Beilby, S., Beverley, Yorkshire; Bennett, E. T., Holmes' Farm, Betchworth; Berwick, H. W. B., Helmsley, York; Betts, E. L., Preston Hall, near Maidstone; Betty, S., 1, Park Street, Regent's Park; Blythe, G., Suffolk Street, Birmingham; Botham, G., Wexham Court, Slough; Boulton, W. W., Beverley, Yorkshire; Bowden, Rev. J., Thurgoland Parsonage, Sheffield; Boys, Rev. J., Rectory, Biddenden, Kent; Bradwell, G., Southwell, Notts; Bradwell, J., Southwell, Notts; Braikneridge, J. H., Chew Magna, Bristol; Branwhite, C., 10, West Clifton Terrace, Bristol; Breavington, W. G. K., Hounslow; Briggs, Rev. J. A., Eastgate House, Tenterden, Kent; Brooke, A. G., Cumberland Street, Woodbridge, Suffolk; Buckland, F., Wraisbury, Staines; Buckley, J., Penyfai House, Llanelly, Carmarthenshire; Bull, W. R., Newport Pagnell, Bucks; Bullock & Rapson, Messrs., Leamington; Burman, T. T., Lady Lane, Hockley Heath, near Birmingham; Burn, S., 1, East Terrace, Whitby.

Camm, J., Farnfield, Southwell, Notts; Cannan, W. Bradford, Yorkshire; Cargay, G., Sandon Farm, Stone, Staffordshire; Carter & Valiant, Messrs., Poulton-le-fylde; Cartwright, P., Oswestry; Catt, C., 44, Middle Street, Brighton; Cattell, J., Moseley, near Birmingham; Chadwin, G., Tollard Royal, Salisbury; Chaney, W., Barford Park, Downton, Salisbury; Chase, R., Moseley Road, Birmingham; Chipchase, T. D., 13, Hanover Street, Rye Lane, Peckham; Chune, J. B., Colebrookdale, Salop; Church, J., Lady Smith's, 49, Lowestoffe; Clowes, Lieut.-Col., Froxmore Court, Worcester; Cole, R., 6, Union Street, Greenwich; Coles, C., Fareham, Hants; Copple, W., Eccleston, Prescott; Corbett, H., Willow Place, Tatton Hill, Warrington; Cornwallis, Lady Julia, Linton Park, Staplehurst; Cother, P. P., Salisbury; Cox, W., Brailsford Hall, Derby; Craigie, J. H., Woodlands, Chigwell, Essex; Crane, J., Tolpuddle, Dorchester; Crocker, G., 23, Queen Street, Plymouth; Cruwys, Rev. G. S., Cruwys Morchard Court, Tiverton.

Dames, C., Hill House, Chigwell, Essex; Date, W. B., 22, Hugh Street, Eccleston Square, London; Davies, I., Bull Street, Harborne, Birmingham; Dawson, H., High Street, Camberwell; Dawson, W., Hopton Mirfield, Yorkshire; Dawson, W., Selly Oak, Birmingham; Dixon, J., North Park, near Bradford; Drewry, J., Newton Mount, near Burton-upon-Trent; Dunning, W., Newport, Salop; Dyson, W. H., 9, High Street, Great Horton.

Edge, J. W., Aston New Town, Birmingham; Edwards, F., Bulstrode Park, Bucks; Edwards, T. P., Lynchurst, Hants; Elliot, Miss S. A., Osborne House, Taunton; Esquilant, F. C., Oxford Street; Fellowes, Rev. T. L., Beighton Rectory, Acle, Norfolk; Felton, C., Erdington, Birmingham; Field, S., Farnfield, Southwell, Notts; Finch, G. Worcester; Firth, J., Lily Lane Mills, Halifax; Fookes, Mrs. H., Whitechurch, Blandford; Forrest, W. S., Eagle Cliff, Greenhithe, Kent; Fowler, J. K., Prebendal Farm, Aylesbury; Fox, G. S., the Court, Wellington, Somerset; Fox, J. J., Devizes, Wilts; Frost, J., Parham, near Wickham Market; Fryer, R., Wilton, Hinton Road, near Hereford.

Garlick, J., Hygeia Street, Everton, Liverpool; Gilbert, Rev. C., Hemsby Vicarage, Great Yarmouth; Goore, G., Aigburth Vale, Liverpool; Griggs, G., Romford, Essex.

Haigh & Hartley, Messrs., Liphill Bank, Holmfirth, Yorkshire; Hall, Mrs. J. C., Surrey House, Sheffield; Hanbury, E., Poles, Ware, Herts; Hanks, G., Quobwell Farm, Malmesbury, Wilts; Harding, D., Middlewich, Cheshire; Hardy, F., Prince of Wales Inn, Bowling Old Lane, Bradford; Harvey, W., Bank Street, Sheffield; Hellewell, G., Walkley, Sheffield; Herbert, Mrs. E., Powick, near Worcester; Hewett, W., jun., Forest Hill; Hewson, Dr. J. D., Cotton Hill, Stafford; Hill, T., jun., Brentwood, Essex; Hindson, J., Barton House, Everton, Liverpool; Hitchcock, H. M., Dunchurch, Warwickshire; Hodson, Rev. G. F., North Petherton, Bridgewater; Hornby, Capt. W. W., R.N., Knowsley, Prescott; Horsnail, Mrs. A., Strood, Kent; James, H., Walsall; James, R., Wallington, Fareham, Hants; Johnson, G., Farcham, Surrey; Jones, P. H., High Street, Fulham; Keable, J.,

Thatcham, near Newbury, Berks; Keable, Miss A., Rowdefield Farm, Devizes; Keable, Master E. E., Rowdefield Farm, Devizes; Kerr, W. H., Elm Villa Worcester; Kershaw, W., Heywood, Manchester; Lamb, G., Red Hill House, Compton, Wolverhampton; Lane, H., 69, Milk Street, Bristol; Lane, W. R., Bournbrook Farm, Birmingham; Lavender, F. A. Biddenham; Lear, Mrs. E., South Street, Wandsworth; Leno, M., jun., Cheverell's Cottage, Markyate Street, Herts; Lewry, J., Handcross, Crawley, Sussex; Lewry, S., Ashington, near Steyning, Sussex; Lingard, E. A., Hawksley Hall, Kingsnorton; Lingard, G., jun., 67, Snow Hill, Birmingham; Lingwood, H., Needham Market, Suffolk; Lowe, J., Whitmore House, Birmingham; Ludlam, W., North Holme Street, Bradford.

Major, Hon. J. M. H., Thornham Hall, Eye, Suffolk; Manfield, W., jun., Dorchester; Marlor, N., Denton, Manchester; Marshall, Mrs. C., Ripley Court, Ripley, Surrey; Martin, J., Mildenhall Mill, Claines, Worcester; Matthew, S., Chilton Hall, Stowmarket, Suffolk; Miller, Miss K., Forbury, Reading; Millin, S., 8, Silver Street, Notting Hill; Milward, Miss J., Newton, St. Lo, Bath; Minter, D., Barking, Essex; Monsey, J., Thorne Lane, Norwich; Moore, W. Hanley, Castle, Upon-on-Severn; Mortimer, J. F., Mill Street, Plymouth; Moss, G. W., the Beach, Aighurth, near Liverpool; Munn, J., Heath Hill, Stackstead, Manchester; Musgrove, Miss V. W., West Tower, Aughton, Liverpool.

Nelson, C. F., New Hall Street, Birmingham; Newsome, W., 30, Milverton Crescent, Leamington; Nightingale, J., Hersham, Esher, Surrey.

Oxley, R., Windsor, Berks.

Paxton, Sir J., M.P., Rock Hill, Sydenham; Peters, A., the Priory, Fratton, Portsmouth; Pettat, Rev. C. R., Ashe Rectory, Basingstoke; Pettat, Mrs. Ashe Rectory, Basingstoke; Porter, H. E., Eland House, Hampstead; Price, J. E., St. Martin's Place, Hereford; Pryor, Rev. F. B., Bennington Rectory, Stevenage, Herts.

Rake, Master McGregor, Brandon Hill, Bristol; Rake, Miss M. L., Brandon Hill, Bristol; Ranson, H., Holbrook, near Ipswich; Ray, G., Ivy Cottage, Minstead, Lyndhurst, Hants; Ridley, S. Clayton, Sussex; Robinson, Mrs., Mansfield Woodhouse, Notts; Robinson, G., Thorpe, Salvin Hall, Worksop, Yorkshire; Robinson, J., Vale House, Garstang; Robinson, T., the Gill, Ulverston; Robson, S., Market Place, Pocklington, Yorkshire; Rogers, W., Woodbridge, Suffolk; Rose, W. R., Cransley, Wellingborough, Northamptonshire; Rumsey, J., 182, High Street, Shadwell.

Sainsbury, G. S., Rowde, Devizes; St. John, Mrs. E. Oakley, Basingstoke; Scott, J., the Brewery, Skipton-in-Craven, Yorkshire; Sewell, R. R., M.B., Bridgwater, Somerset; Sheen, T., 904, Holborn Hill; Simmonds, H. M., 74, Albany Road, Camberwell; Simmons, J., Rainham, Sittingbourne, Kent; Smith, A., 8, Castle Place, Southsea, Hants; Smith, R., 75, English Street, Hull; Smith, S. T., Lincoln View, Ironbridge; Square, W. J., 22, Portland Square, Plymouth; Squire, W., Hanwell, Middlesex; Stevens, F. G., Fuzley House, Axminster; Story, Rev. P. W., Charwelton, Daventry; Stretch, T., Marsh Lane, Bootle, Liverpool.

Tate, R., Driffild, Yorkshire; Teebay, R., Fulwood, near Preston, Lancashire; Tester, J., Kemp's Farm, Balcombe, near Cuckfield, Sussex; Thynne, Lady Louisa, Muntham Court, Worthing, Sussex; Tomlinson, H., Balsall Heath Road, Birmingham; Treadaway, G. F., Harrow Road, Paddington.

Vaughan, B., Ketley, near Wellington, Salop; Vernon, Hon. W. W., Wolseley Hall, Rugeley, Staffordshire.

Wakefield, C. H., Malvern Hills; Walker, J. S., the Briery, Hunsdon, Ware; White, F., Crescent Lane, Clapham Common; Whittington, H., 6, Benyon Terrace, Buckingham Road, Kingsland; Wicking, M., Blackheath Park; Wilkinson, E. A., 103, New Hall Street, Birmingham; Williams, T., Southcote House, Reading; Wilson, R. W., Wormley Hill, Broxbourne, Herts; Wolff, Herr Carl Emil, Barmen, Rhenish Prussia; Woodhouse, W. J., Blackfriars Road, Lynn, Norfolk; Worrall, W. C., Rice House, Liverpool; Wright, J., Hulland Park, Ashbourn; Wright, R., 2, Porter's Place, Holloway; Wright, T., 2, Porter's Place, Holloway.

NANTWICH POULTRY SHOW.

THIS Show very far exceeded our anticipations, more particularly as the competition for prizes rested exclusively with parties residing within thirteen miles of Nantwich; and, notwithstanding the influence such a condition must necessarily have on the number of pens entered, there eventually proved to be a collection of considerably beyond 300 entries, and that, too, of a quality, as a whole, decidedly superior. The building chosen for the purpose of the Poultry Show was the Nantwich Town Hall, and only very rarely have we seen one more suitable.

The pens used on this occasion were some belonging to the Society, and made expressly for this and future meetings, very closely resembling those of Turner's, of Sheffield, as to construction; and we were informed it was the intention of the Nantwich Committee to let them to other Societies at a moderate charge, thus very greatly decreasing their own outlay. There can be but little doubt of the policy of this arrangement, and that very speedily all the original cost will be thus refunded.

It is well known that the neighbourhood of Nantwich (Cheshire) has for a long number of years been remarkable for the excellence of its poultry, and certainly the obtaining such a collection of almost every variety, exclusively from its own immediate resources, will tend still further to strengthen its notoriety.

The Committee were energetic, and obtained a very extended patronage, not confined, we are happy to say, exclusively to names, but great numbers of the surrounding gentry kindly sanctioned it by their presence. On entering the Exhibition we noticed W. Tollmarsh, Esq., and party; W. H. Hornby, Esq., and family; G. Bellyse, Esq.; Dr. Bellyse; R. Brooke, Esq., of

Hankelow; Thomas Green, Esq., of Stapeley; Hugh Marten, Esq., and the Misses Marten; Joseph Batteley, Esq.; T. R. Court, Esq., of the Rookery; Captain Price, of Stapel House; R. C. Eddlestone, Esq., of Nantwich; the Rev. A. F. Chater and friends; Thomas Williamson, Esq., and great numbers of others to us personally unknown. The general opinion then was that "never was a first Show more successful;" and no doubt another year the entries, though still confined to the same limited residency, will in numbers be doubled.

Speaking of the poultry, the *Game* classes were undoubtedly the best of any; the Brown Reds were shown as only old Game breeders can show them, and certainly it would have given us great pleasure to have seen some of the best of them in competition at our largest Shows, as they appeared quite able to hold their own anywhere. On the contrary, the *Spanish* fowls and the *Cochins* were the least praiseworthy of any of the classes. The classes for Grey *Dorkings* were marvellously good. The *Hamburgs*, too, were most creditable. The *Polands*, though few in number, were good; but the *Bantams* were indifferent.

The *Geese*, *Ducks*, and *Turkeys* were very superior; indeed, the great feature of the Nantwich Show seemed to be extraordinary excellence in those classes notorious chiefly for utility. This is as it should be, and will tend much to increasing popularity.

The *Pigeons*, though many of them were good, were not deserving particular mention; although, as a provincial Show, excluding by its rules public competition, it could scarcely have been supposed there would have been so good an entry.

The *Rabbits* were far superior to those exhibited at most Shows; but the competition in the classes for *Singing Birds* was very limited.

Much praise is due to the Committee for the successful issue of this their first meeting, the only mistake out of the whole management being the pens for the Single Game Cocks were decidedly too small to show them to advantage: another season this will be carefully guarded against.

If future meetings of this Society be marked by the same careful attention that has been displayed in the one just concluded, a few years hence Nantwich will vie with most of our poultry exhibitions.

SILVER CUP, presented by the Licensed Victuallers of Nantwich and neighbourhood for the best GAME COCKEREL, of any colour, exhibited specially for this Prize.—Silver Cup, T. Stringer, Stapeley, Second and Third, T. Hollowood, Beam Bridge, Nantwich. Fourth, J. Pedley, Nantwich. Highly Commended, G. Brooks, Hurleston; S. Brassington, Betley Staff; J. Parton, Nantwich. Commended, T. Whittingham, Batherton; E. Bebbington, Minshull Vernon; H. Logan, Woore, Salop.

SWEEPSTAKES FOR GAME COCKS, of any age or colour, the Prizes proportionate to the Entries. The First Prize given in a SILVER CUP.—Silver Cup, T. Latham, Nantwich. Second, W. Bott, Nantwich. Third, T. Hollowood, Beam Bridge, Nantwich. Highly Commended, W. Galley, Nantwich; J. Wilson, Crewe; J. Parton, Nantwich. Commended, W. Galley.

SPANISH.—First, W. Woolley, Bunbury. Second, D. Harding, Middlewich. Commended, Mrs. E. D. Broughton, Wistaston Hall. *Chickens*.—First, T. Trevitt, Wistaston. Second, Mrs. E. D. Broughton, Highly Commended, J. Grocott, Nantwich; J. Heath, Nantwich. Commended, G. Garnett, jun., Minshull Vernon.

DORKINGS (White).—First, S. Davies, Eardswick Hall. Second, T. Wood, Minshull Vernon. Highly Commended, T. Burgess, jun., Burleydam.

DORKINGS (any other colour).—First, T. Burgess, jun., Burleydam. Second, Mrs. E. D. Broughton, Wistaston Hall. Highly Commended, J. Leach, Crewe; Mrs. H. Akroyd, Doddington Hall. Commended, J. Fern, Bunbury; Capt. Price, Stapeley House; Mrs. Tollemache, Dorfold Hall. *Chickens*.—First, T. Burgess, jun. Second, Mrs. Tollemache. Highly Commended, Mrs. E. D. Broughton.

COCHIN-CHINA (Cinnamon, Buff, and Partridge).—First, W. Forster, Nantwich. Second, J. Dutton, Bunbury.

COCHIN-CHINA (any other colour).—First, J. Dutton, Bunbury. Second, G. Williamson, Nantwich. *Chickens*.—First and Second, J. Dodd, Minshull Vernon.

HAMBURGS (Golden-pencilled).—First, D. Harding, Middlewich. Second, W. Griffiths, Nantwich. Highly Commended, T. Burgess, jun., Burleydam. Commended, D. Harding, Middlewich; A. Sellers, Nantwich.

HAMBURGS (Silver-pencilled).—First and Second, D. Harding, Middlewich.

HAMBURGS (Golden-spangled).—First, T. Burgess, jun., Burleydam. Second, W. Wettenhall, Weston. Commended, T. Burgess, jun.

HAMBURGS (Silver-spangled).—First and Second, T. Dale, Middlewich. *POLANDS* (Black with White Crests).—First, T. Sproston, Middlewich. (Second no competition.)

POLANDS (Silver or Gold-spangled).—First, T. Burgess, jun., Burleydam. Second, J. Heath, Nantwich. Commended, E. Bebbington, Minshull Vernon.

POLANDS (any variety).—*Chickens*.—First, J. Heath, Nantwich. (Second withheld.)

GAME (Black-breasted and other Reds).—First, E. Bower, Broad Lane, Nantwich. Second, J. Bellyse, Dorfold Cottage. Commended, T. Whittingham, Batherton.

GAME (Black-breasted and other Reds).—*Chickens*.—First, T. Stringer, Stapeley. Second, J. Parton, Nantwich. Highly Commended, S. Blackburn, Heath Side, Nantwich. Commended, W. Forster, Nantwich.

GAME (any other variety).—First, T. Burgess, jun., Burleydam. Second, W. Bott, Nantwich.

GAME (any other variety).—*Chickens*.—First, J. Parton, Nantwich. Second, H. Cawley, Priestland. Commended, E. Lightfoot, Nantwich.

BANTAMS (Game, any colour).—First and Second, T. Burgess, jun., Burleydam.

BANTAMS (any other variety).—First, D. Harding, Middlewich. (Second withheld.)

SINGLE COCKS.

SPANISH.—Second, T. Wakefield, Wistaston. (First withheld.)

DORKINGS.—First, T. Green, Stapeley. Second, T. Burgess, jun., Burleydam. Highly Commended, E. Whittingham, Crewe Mills. Commended, W. Boote, Nantwich Arms.

COCHIN-CHINA.—First, E. Tudman, Whitchurch. Second, J. Dodd, Minshull Vernon. Commended, E. Tudman.

HAMBURGH.—First, T. Dale, Middlewich. Second, W. Forster, Nantwich. **POLANDS**.—Second, J. Brownword, Betley. (No competition.)

GAME (Black-breasted and other Reds).—First, T. Hope, Nantwich. Second, T. Hollowood, Beam Bridge, Nantwich. Highly Commended, J. Pedley, Nantwich; J. Parton, Nantwich. Commended, W. Sowerbutts, Nantwich; J. Wilkinson, Norbury; E. Bower, Broad Lane, Nantwich.

GAME (any other colour).—First, T. Burgess, jun., Burleydam. Second, J. Wilkinson, Norbury. Commended, W. Forster, Nantwich.

BANTAMS (any colour).—First, T. Burgess, jun., Burleydam. (Second withheld.)

TURKEYS.—First, Mrs. H. Akroyd, Doddington Hall. Second, Mrs. Tomkinson, Dorfold Hall. Highly Commended and Commended, W. H. Hornby, Shrewbridge Hall.

GESE (any colour).—First, Miss E. Teasdale, Spurstow. Second, W. Furnival, Norton. Highly Commended, T. Teasdale, Spurstow.

DUCKS (Aylesbury).—First, E. Viggor, Over. Second, W. H. Hornby, Shrewbridge Hall. Highly Commended, T. Green, Stapeley; T. Parton, Chorlton.

DUCKS (Rouen).—First, Capt. Price, Stapeley House. Second, T. Burgess, jun., Burleydam. Highly Commended, R. Ashley, Wistaston.

DUCKS (any other variety).—First, T. T. Mousley, Combermere (Call Ducks). Second, T. Burgess, jun., Burleydam (East Indian). Highly Commended, E. Bower, Broad Lane, Nantwich (Wild Ducks).

PIGEONS.—*Pouters*.—Prize, H. Prince, Nantwich. *Carriers*.—Prize, H. Prince, Nantwich. *Almond Tumblers*.—Prize, T. Lovatt, Nantwich.

Mottled Tumblers.—First, J. Hockenhuil, Tilston, Tarporley. Second, W. Dudley, Nantwich. *Balds*.—First, W. Dudley, Nantwich. Second, J. Lewis, Nantwich. *Tumblers* (any other variety).—First, G. Peak, Shavington. Second, E. Peak, Shavington. *Dragoons*.—First, S. Major, Cholmondeston. Second, G. Garnett, jun., Minshull Vernon. Highly Commended, W. Thurshy, Crewe. *Fantails*.—First, H. Prince, Nantwich. Second, W. Furnival, Norton. *Jacobins*.—No entry. *Nuns*.—Prize, J. Peake, Shavington. *Trumpeters*.—No entry. *Owls*.—First, J. Peak, Shavington. Second, G. Peak, Shavington. Highly Commended, J. Brownword, Betley. *Turbits*.—No entry. *Any other variety*.—First, W. Forster, Nantwich.

SINGING BIRDS.—*Yellow Belgian or Dutch Canary*.—First and Second, W. Tomkinson, Wall Lane, Nantwich (Belgian). Highly Commended, C. Billington, Nantwich; R. Lord, Nantwich. *Buff Belgian or Dutch Canary*.—First, R. Lord, Nantwich. Second, T. Ashley, Nantwich (Belgian). *Canary of any other variety*.—First, R. Wells, Nantwich. Second, W. Jackson, Burland (German). *Goldfinch (Red Linnet)*.—First, W. Furnival, Norton. Second, J. Moulton, Nantwich. Commended, R. Pace, Nantwich. *Wood or Skylark*.—First, J. Singleton, Nantwich (Skylark). Second, J. Willett, Nantwich (Skylark). Second, J. Garnett, Nantwich (Bullfinch). *Brown Linnet*.—First, W. Griffiths, Nantwich. Second, D. Basford, Nantwich.

RABBITS.—*Length of Ears*.—First, G. Forster, Nantwich (18½ inches). Second, Miss Bellise, Shrewbridge Lodge (18 inches). *For Weight*.—First, A. Forster, Nantwich (12½ lbs.). Second, T. Murray, Acton (10½ lbs.).

Judge for the *Poultry*, Mr. E. Hewitt, Sparkbrook, Birmingham; for the *Pigeons*, Mr. C. Cotten, of Crewe; and for *Singing Birds*, Mr. Joseph Green.

LARGE PRODUCE OF EGGS.

I AM a subscriber to THE COTTAGE GARDENER. I have seen your remarks on the scarcity of eggs; and having a poultry-yard which is my hobby, I wish to give you an account of the success I have had this last year—I will not mention the three previous years during which time I have kept poultry. My stock consists of various-coloured Cochins, bred and crossed with imported birds brought by a friend direct from Shanghai. I have black birds, white birds, cuckoo-plumaged birds, partridge birds, and some with white and black feathers—all fine birds. My poultry-yard is at my stables (I do not keep horses), measuring 32 feet by 15 feet, bricked. The hen-house is a part intended for a harness-room, with a ceiling, and also bricked, measuring 15 feet by 9 feet. They have no more room. The nests are all close to the ground and the perches low. The place is swept out clean every morning, sanded, and well ventilated; the yard is also swept every morning. During the winter they have straw to lay upon. There are two sand-baths, gravel, mortar-rubbish, and sulphur under cover to roll in. The nests are also kept whitewashed, sprinkled with lime and sulphur: this keeps them free from vermin. They are well supplied with clean water, and fed three times during the day, food all of the best quality, with plenty of green food. It would take too great space to tell you all the treatment. The number of eggs pro-

duced during the year 1859 amounts to 3593 from about thirty hens. The accompanying table will give you the particulars. During the month of August my family were away from home. On the 10th of October eight hens and one cock were sold. Up to this date there were thirty hens and four cocks. The latter end of December the pullets, late birds, began laying; making up thirty-three hens and four cocks. Allowance must be made for setting hens and bringing up the chickens.—W. F. HOPKINS, *Surbiton Hill, Surrey*.

[Mr. Hopkins has obliged us by a tabular return of the daily number of eggs laid by his hens during 1859; but we must not spare room for more than the monthly totals:—

Jan	Feb	Mar	Apl	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
336	311	411	393	435	543	313	189	320	196	166	180
Total.....									3593		

In January of the present year the produce of eggs was 352. The greatest number laid in one day was 18.]

LIGURIAN BEES.

WE request the attention of bee-keepers to the following offer:—

"THE DEVONSHIRE BEE-KEEPER" is desirous of assisting in the extended culture of the "Ligurian Bee" (*Apis Ligustica*), and with this object in view, is willing to devote his apiary during the approaching season to the multiplication of queen bees of this species.

He intends charging half a guinea for each impregnated queen, and sending them, *a la Hermann*, in small boxes, accompanied by a few hundred workers, to any part of the country. At this price they will cost little more than a third, as compared with those sent from Switzerland, and afford but a poor remuneration for the trouble and expense; but his object is to get them into general cultivation.

It is especially necessary that orders should be given *at once*, as this is the time for making arrangements to meet the demand. If "A DEVONSHIRE BEE-KEEPER" has sufficient notice, he thinks he can manufacture a sufficient number.

The orders will be executed strictly in the rotation in which they arrive.

"THE DEVONSHIRE BEE-KEEPER" has requested us to allow the orders to be sent directed for him to our Office. We have great pleasure in permitting this, and will take care that every letter is forwarded to him without delay.

OUR LETTER BOX.

DARK BUFF COCHIN COCK (*W. J. H.*).—He is, probably, what is called a Cinnamon-coloured bird, and the hens ought to be of the same. If you mate him with white hens, you will have some black chickens, and many mealy. If you wish for lighter buff chickens from him, have some light buff hens; but many of the chickens will be dark even then.

POULTRY SENT BY RAILWAY (*G. M.*).—We know of no particular precautions requisite for fowls travelling by railway. We send them in a round basket, covered with canvas, and head the direction "Live Fowls." Every Exhibition has its fixed charge per pen, varying usually from 2s. 6d. to 5s. If you write to the Secretary and say what you wish to exhibit, he usually sends you a printed form to fill up, a direction label, and all needful particulars.

PARTRIDGE COCHIN-CHINAS (*W. R. E.*).—We see nothing wrong in the feathers you have sent up; but the back is generally right. The difficulty is on the breast, where there is too often a tendency to a yellow tinge, and to the comb, which often twists. You want small, fine heads, and straight combs; together with plumage *all over* as much like the feathers you have sent as possible, and then you will have birds free from the prevailing defects of this breed.

CRYSTAL PALACE POULTRY SHOW (*Coz, Bristol*).—A letter directed to "Mr. Houghton, Secretary of Poultry Show, Crystal Palace, Sydenham," will be sure to reach him.


WINTER LAYERS.—I shall be glad to know what your correspondent, "FREEFOLK," in your Number of January 10th, considers proper food for poultry. I have Black Spanish pullets hatched last May, and Silver-spangled Hamburgs of the same date, not one of which has laid as yet, while I have hens nearly two years old laying six days out of seven. Your correspondent says, "If properly fed, pullets will lay in winter," particularly of the above-named breeds. I, therefore, must suppose mine are not properly fed, as they do not lay. I shall feel much obliged to "FREEFOLK" for any information he can give me as to the best mode of feeding poultry.—A NEW SUBSCRIBER.

HONEY (*H. Moore*).—Whether it is pure honey we cannot take upon ourselves to say, without previously analysing it; but there is no doubt that it will do admirably for feeding bees.

BEES DYING (*A Bee, Darlington*).—It is impossible, unless we know all the facts of the case, to determine the precise cause of the death of your bees. We never had any partiality for glass hives, which are much too great conductors of heat for safety in winter. Wooden boxes, moreover, ought not to be less in thickness than a full inch; but an inch and a quarter is still better. As the untenanted hives contain honey, they may be placed over other stocks in the spring, as you propose.

LIGURIAN BEES (*Aberdeenshire*).—Your question relative to M. Hermann and the Ligurian Bees, would, doubtless, be answered on application to his agents, Messrs. Neighbour and Sons, 149, Regent Street, London.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	FEBRUARY 21—27, 1860.	WEATHER NEAR LONDON IN 1859.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
21	Tu	SHROVE TUESDAY.	30.303—30.271	58—40	S.W.	—	6 af 7	22 af 5	sets		13 56	52
22	W	LENT BEGINS. ASH WEDNESDAY.	30.384—30.282	53—27	S.W.	.02	4 7	24 5	27 a 6	1	13 49	53
23	Th	Sambucus nigra.	30.581—30.483	49—26	W.	—	2 7	26 5	35 7	2	13 41	54
24	F	St. MATTHIAS.	30.414—30.318	52—25	W.	—	VI	28 5	44 8	3	13 33	55
25	S	Scilla bifolia.	30.314—30.182	52—25	W.	—	57 6	30 5	54 9	4	13 24	56
26	SUN	1 SUNDAY IN LENT.	29.923—29.616	50—40	S.W.	.06	55 6	31 5	8 11	5	13 14	57
27	M	Vaccinium vitis-idaeus.	30.173—29.944	51—23	N.W.	—	53 6	33 5	morn.	6	13 4	58

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 47° and 32.8° respectively. The greatest heat, 60°, occurred on the 26th, in 1846; and the lowest cold, 10°, on the 21st, in 1855. During the period 130 days were fine, and on 101 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

THE continued frosty weather has, of necessity, required fires to be kept up in these houses; therefore, particular attention must be given to the New Holland plants, Heaths, and such-like, which are impatient of heat, that they do not suffer from want of water. Be sure that the ball is thoroughly moistened at least once a-week.

PITS AND FRAMES.

Amongst climbers, Calampelises, Cobæas, Lophospermums, Maurandyas, Rodochitons, and Tropæolums, deserve attention at this time, increasing them by cuttings or by seeds. Some annuals are also worthy of attention, such as Brachycomas, Phloxes, Portulaccas, Schizanthuses, with others which may all be forwarded in heat. Whoever has not yet attended to the propagation of plants for bedding out, should now begin, without further delay, to put in cuttings of Fuchsias, Verbenas, Heliotropes, Petunias, Salvias, Scarlet Geraniums, &c., to have good plants in May and June. All straggling and weak shoots to be topped back to form robust, bushy plants.

STOVE AND ORCHID-HOUSE.

Some of the stove plants that have done blooming should be cut back, such as the *Eranthemum pulchellum*, *Euphorbia jacquiniæflora*, *Geissomeria longiflora*, *Gesnera lateritia*, *Justicias*, *Linum trigynum*, *Poinsettia pulcherrima*, and others. A bottom heat will be necessary when they are repotted, which may be done in about three weeks or a month. Such of the most forward plants, as they require shifting, to be attended to. The condition or fitness for this must, in a great measure, be determined by the progress the shoots and roots have made.

FORCING-PIT.

Continue to introduce plants of Azaleas, Hyacinths, Heliotropes, Hydrangeas, Kalmias, Sedums, Lilacs, Narcissus, Pelargoniums, Pinks, Rhododendrons, and Roses in varieties. A batch of last year's young Fuchsias, Erythrinæ, and *Salvia patens*, to be shaken out, repotted, and placed in bottom heat. Sow Balsams, Cockscombs, Globe Amaranths, &c.

FORCING-HOUSES.

CUCUMBERS.—Attend as previously advised to thinning and stopping, set the fruit blossom when open, keep the inside of the frames watered with warm water, and apply some occasionally to the roots. Water overhead on fine days, shutting up with 75° or 80° of heat.

CHEERRIES.—They will be benefited by frequent syringings at all times except when in bloom. Air to be given on all favourable occasions, shutting up with as much solar heat as possible. Keep down the green fly and look well after caterpillars.

FIGS.—Maintain a kindly humidity, but do not syringe overhead, except on very fine days, as too much moisture is apt to cause the fruit to drop off or to turn yellow.

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PEACHES.—Tie in the forwardest shoots in the early-house as they advance; gradually disbud and thin out all the shoots that are not wanted; thin the fruit but not too much at once, and, with water of the temperature of the house, syringe the trees that have set their fruit. Remove large shoots cautiously, and reserve, in tying and disbudding, merely sufficient wood for next spring.

PINES.—The atmospheric heat to be gradually increased in the fruiting-house, and the plants to be frequently syringed, taking care that no water is allowed to lodge in the hearts of the plants. The plants swelling their fruit to be watered occasionally with clean soot water, air to be admitted on every favourable opportunity, but cold draughts to be avoided. A good heat to be kept up in succession-pits worked with linings.

STRAWBERRIES.—To be placed near the glass with plenty of air, and in favourable weather to be liberally supplied with warm manure water, and the surface of the pots to be frequently stirred.

VINES.—As soon as the first swelling is completed, and the stoning process commences, allow a little more liberty to the laterals to induce a corresponding increase of root action. All shoots to be properly trained up; but none to be allowed to touch the glass. All small bunches to be removed when in flower. When the fruit is set, the heat by day may be allowed to rise from 70° to 80°. See to the border coverings, if out-doors, as also border waterings, if in-doors. Be careful when admitting air to the early Vines, to avoid cold currents and changes, for in the space of an hour we have sometimes strong sunshine, sleet or snow, and cutting winds. Vines in pots to be supplied with plenty of manure water in all stages of growth, but especially when swelling off their fruit.

WILLIAM KEANE.

ROOT ACTION—POTTING.

"WHO shall decide when doctors differ?" or, who can wonder at the strange questions which some of our "SUBSCRIBERS" and "CONSTANT READERS" send up for our decision from time to time, "when such practical men as Mr. Rivers and D. Beaton hold opinions contrary as the poles, and as far asunder, on the first principle of actual practice in gardening?"—namely, on the natural law under which the roots of plants live, move, prosper, or decay.

Some might expect, or rather think, that Mr. Rivers was not altogether pleased at my saying that what he found the matter with the young roots of his potted orchard-house trees was a re-opening of an old theory of the annual perishing of the young roots, or tops of the young roots, of all plants whatsoever. All that he or I can say to such as might think so, is, that none of them are fit and proper subjects to defend our coast, or be volunteers in the rifle corps of our common country. No:—such men of true metal as "we," may differ to the end of the chapter, but never disagree, or be disagreeably affected with anything that all the world may say or think of us, or that we may say or think of each other; both

of us have been over head and ears in gardening all our lives; both of us understand, and personally experience, the pleasures which gardening brings on with age, when other pleasures share the same fate as the young roots of his potted fruit trees, and we are both naturally of that turn of mind which impels one, as it were, involuntarily to volunteer in the good cause as many as our pens and passions can reach, or influence in the smallest degree. Being the oldest, I sometimes stand against him so much upon the prerogative of ancient wisdom, as to seem to wish to crow the Emperor; but nothing is farther north than that idea. The whole truth is this in one sentence: Mr. Rivers never took to potting, from necessity, till the orchard-house fancy took possession of his whole mind and frame, when he must needs do so many turns with his own hands as will insure the perfect safety and success of his hobby; while I had to suck my thumb from the cradle to the potting-bench, and think and ransack my brains with reading and studying, and with learning the very language in which the best gardening of the world is written for our learning; and I had to learn as much of it from reading as Mr. Rivers did by seeing it practised under his own eye, when he could spare the time from his gun and dogs, and as much of it from the necessity of using my head and hands on it, to keep the rest of the body together, as makes me more confident of the laws of Nature on it, than could be justified by a lighter and more easy acquaintance, such as he must have enjoyed in his younger days.

The practical and scientific minds of gardening were first brought face to face in the year 1822, in Loudon's "Encyclopedia of Gardening," and it was in the summer of 1824 that I first heard of the doctrine of the annual death of the young ends of all roots. The question was argued between two first-rate gardeners, the one then living at Tarbot House, in Ross-shire, with the father of the present Marchioness of Stafford; the other with the father and mother of the present Baronet who enjoys the beauties of Altyre, near Forres. Mr. Mills, a gardener near Reading, and well known to Mr. Low, of Clapton, was the very person who had to do the experiments, to prove the doctrine on the wrong side of the book, and so as to prove clearly that Mr. McLean, recently from the London boards, and latterly from the honourable firm of "Lee's Nursery," to Altyre aforesaid, had taken his degrees in the then improved education of the London school of gardening. If Mr. Mills should live to the age of Methuselah, he can never forget these experiments, nor another in which a Cucumber-frame was tarred or pitched inside for a different experiment. Here, then, the best Pelargoniums, and the coral plant, *Erythrina crista-galli*, were the chief subjects which lost their young roots while resting, or after being cut down, and let to dry at the roots, and the practice was to clear away only as much of the old ball as covered the dead roots; the innovation of the London school consisted in doing away with all the old ball, and beginning afresh with all the compost fresh throughout.

The next regular contest on the subject under my own eye was in the spring of 1827, in the Experimental Garden at Edinburgh under Mr. Barnet, then, also, fresh from the Chiswick Garden, and now just as fresh in the Botanic Garden, Regent's Park. He had Vines in pots; they turned dry in the balls, and lost their young roots in consequence; and he would have the balls entirely shaken off also, to the scandal of the schools of modern Athens. In a lecture on that way which he, the said Mr. Barnet, gave in the spring of 1828, he mentioned a very large *Eranthemum pulchellum* belonging to Professor Dunbar—Professor of Greek in the University. This *Eranthemum* stood for years in the same large pot. Mr. Barnet said it ought to be let to dry in the winter, and to have the ball renewed every spring; but a Mr. Crighton, who was one of the hands at the Experimental, insisted on it that that would kill the roots as surely as the roots of the

said pot Vines. "Only the young roots, and they ought to go," replied Mr. Barnet. Mr. Sharp, who is now gardener to the Earl of Eglinton, and a Mr. Alves, who reads THE COTTAGE GARDENER, were both at this lecture; and both of them declared to me that they could see Mr. Crighton's ears pricking up and his hair stand on end at this outlandish heresy: he could stand no more of it—he went over to Ireland, and may be to Rome; for I never heard any more of him.

In the spring of 1829, Mr. Mackay, then holding the Clapton Nursery, and now living on the fruit of his industry—"a perfect gentleman," as Tom Parfit would say—down in Hertfordshire, gave a lecture on the very same subject in the Clapton Nursery to about thirty gardeners, young and old, and from all parts of the kingdom. Mr. H. Low may recollect that lecture, for he was of the number. It was suggested by the appearance of a newly potted Epacris which drooped very much. The man who potted that lot was called over the coals in the first part of the lecture. The lecturer had a winning way, which carried his hearers with him to conviction; and he told us the drooping of that plant had more meaning in it than some of us might understand:—that it was owing to one of two things;—that the man, "that man," who potted this plant was either a disciple of the theory that all young roots must of necessity die back in winter, and cut away too many of the supposed dead roots at potting; or else the pot got too much sun last autumn, and scorched all the young roots which were next the pot, and the ball was potted whole, dead roots and all; and the plant was now dying, either from want of roots, or from having a layer of dead roots between the old and the new soil of the ball. The plant was turned out, and the latter misfortune was found to have been the cause of the mischief. The lecturer then went on to say that all plants like Heaths and Epacris, which had hair-like roots, ought to be very diligently examined at the time of potting to see if all their roots were sound, as they were peculiarly liable to lose part of their roots by too much or too little water in winter, or too much exposure of the pots to the sun during the autumn; and that no more of their balls should be disturbed in the spring than just to release the extreme ends of the roots from going round and round the ball, or among the crocks at the bottom of the ball;—that thus relieved at the proper moment would allow the first move of the roots to be made direct into the fresh soil, which was the grand secret of all potting. "But," said he, "there is another side to the picture,"—pots which we store away for the winter, such as I now forget, but the Hydrangea was one of them, and that he brought or had sent for to explain "the other side" of the question. Plants such as these, which we allow to go dry at the roots during the winter, must necessarily lose the small fibrous roots for lack of moisture; but experience has taught us that that is much better for them and for us. As soon as they are set to grow in the spring they are able to reproduce young feeding roots from all parts of the older ones, and we can manage them in much smaller pots and in less room in consequence. "But what I want more particularly to explain to you and to recommend to you for future practice," he went on to say, is the great improvement in the new way of potting all such plants as this Hydrangea, which lose their roots by drying. Formerly the practice was to pare away just as much of the old ball as took away the dead roots, and to retain the whole of the centre for the safety of the old roots. That practice was the bane of gardening since Miller's day. The old soil in the centre of the ball was so liable to get too dry before the fresh soil on the outside required water, that plants were being actually starved! He was most impressive on one thing at this point. "Many of you may probably believe a set of roots to be in good condition when you observe the fresh looks of the new ones coming out through the new part of the ball. Believe me, however, when I tell you the fact that

the freshness of the recent roots, and the extent of their number and strength, will very soon turn to be the cause of the ruin or destruction of the plant." I misunderstood this; and the oldest gardener there was, as far as I could learn, just as much at fault.

Thus, only four years before the first Reform Bill, some of the best gardeners in the country did not know or understand the principle of potting plants. The more healthy and more numerous the young roots, the worse they must, consequently, be for the health of a plant with the centre of the ball dry, and the old roots in that part of the ball so much shrivelled from the long rest, that they can no more pass up the one-quarter of the moisture from so many young mouths than a rain-water pipe, that is half-choked with leaves and dirt, can pass down the water from the roofs of our houses. Often have I thought of this part of the lecture of 1828 when I read of Calceolarias going to the bad. "But," said he, "the new method rids us of all that annoyance. We find no hindrance in the growth, or any risk about shaking off the whole ball from all rested plants whatsoever. The stimulus from the new soil causes the hardest parts of the oldest roots to issue a host of young feeders, and the general impulse thus given to the whole system of the plant will cause the new method of potting to be adopted by all;" and so forth.

The lecturer can now say how far my memory serves me, at any rate; for I know he reads THE COTTAGE GARDENER, so do Mr. Barnet, Mr. Low, and Mr. Sharp. But the first person who introduced "the new system of potting" beyond the Grampian range is Mr. N. Niven, now at Drumcondra, near Dublin. As early as 1821 or 1822 Mr. Niven grew young Vines in pots at Belladrum, beyond Inverness, dried them off in the autumn, killed all the young roots in so doing, shook them out in the spring, and planted and fruited them in small frames he had for Cucumbers. I saw all his plants, his pruning, and his fruit, and he wrote a paper at that time explaining the whole in the "Memoirs" of the Caledonian Horticultural Society.

Soon after the lecture of 1828 Mr. Marnock, now of the Botanic Gardens, Regent's Park, invented and published the first plan for saving young roots from being scorched in pots by exposure to the sun by his system of double potting. Plunging pots, for the same end, is of older date. About that time Dr. Lindley published the first figure of *Aphelandra cristata* from the Earl of Shrewsbury, I think; and that plant was the breaking up of the ice and the crust of ages which covered the eyes of half the world from the fact, that all resting plants should be so completely rested as to render them exactly as Mr. Rivers's plan has improved his pot culture of fruit trees—that is, dry them in the resting to such a degree as will completely kill the young roots. The great patrons of gardening were in raptures with *Aphelandra cristata*. We old gardeners had to bring it out in first style: three, four, or six heads of spikes on a three-year-old plant was the maxim of that day; but to get up so high we had to begin with a stump as low as six or nine inches, about this time of year, in a 32-pot, and bottom heat which we kept going as long as head-room lasted; then into a bark-bed in the stove, and fresh pot every six weeks, till at last we reach No. 12 and No. 8-pots—enormous pots! then the plants would stand in the drawing-rooms after the house was too hot for Chrysanthemums, or just by the drawing-room doors in the conservatory.

But where were such stools to be kept during the winter? Some one discovered that they would be quite safe in the balls, and out of the pots, all the winter, under the stages in the plant-stoves, where they did beautifully for three months without a drop of water; and in the spring, when the balls were broken, the young roots were as dry as chaff, and quite as dusty—dead and gone weeks ago. Nothing would then do but that the gentlefolks

must have all soft-wooded stove plants got up in the same way and style for the living-rooms, and for the conservatory. *Rupellia juncea* was the next after *Aphelandra*; *Justicia carnea* the next; then a host of *Justicias* and other *Acanthads*; with *Vincas*, *Clerodendrons*, and no end of things; and last of all came *Poinsettia pulcherrima*, and all the hybrid *Fuchsias*; and every one of these, and such kinds under that particular system, lose every morsel of their young roots in winter—or, if they do not, depend upon it they were not properly rested.

Every *Fuchsia* that is over two years old, and was laid by last October and November, to rest for the winter, ought to have all parts of their young roots now quite as dead as the young roots of those very fruit trees spoken of by Mr. Rivers. And do you suppose an old man like me, who has been up to the elbows in all this, would allow the young spalpeens all over the country to twit my own best pot and pen companion, for saying that all this was "wisely ordained," without explaining the reason why it was so? At the time of that ordination every plant carried its own roots, great and small, the year round, save Irids, and a few other bulbs. Mr. Woods's one-shift system, and Mr. Rivers's fruit-tree-potting system, were not thought of then, and no provision for the lives of the young roots was made; consequently away they go, and we have founded a branch of our practice on the fact that go they must. But to establish a practice founded on a belief that they must needs leave us, whether we would or not, would be too apt to cause some of our own number to go instead, not from finding the place too dry to bear, but too hot to endure. A *Fuchsia* will keep its roots as fresh as new laid eggs as long as you keep watering the pot; so will a Vine, a Peach, or any fruit tree whatever; and no *Fuchsia* or fruit tree has ever yet lost an inch of its roots in good ground, or ground that was good enough for the kind, as long as that kind was in health and in the vigour of youth.

Similar in kind, and in degree, with this death in the roots, is the common fallacy of "leaves making roots, and roots leaves." We have just seen that roots—I mean the young roots, or annual growth of roots—will live or die at the end of every season of our lives, according to a rule in practical gardening, not after a natural law, or a scientific idea of the thing—nothing of the kind. A scientific idea carried up to the top of a tree, or down to the extremity of the roots, tells us that neither roots nor leaves are made in the absence of either; but practical observation tells just the contrary. Roots are made as freely when there are no leaves as when they abound the most, and leaves just the same; but, after leaves are made, in the absence of roots, they will not stand long without aid from roots; and if there are no roots, away they go also, like the roots in a dry ball:—the system or the plant is too dry for them to exist *on*, just as the ball was too dry to exist *in*. But roots, in well-conditioned soil, when made in the absence of leaves, never die, or not till the whole plant above them and older roots behind them perish first. Many experiments to prove that fact were suggested to me as far back as the autumn of 1831, and they were proved to the satisfaction of the best physiologist that England has yet produced—the late Mr. Knight, of Downton Castle, who, also, before that period had some misgivings about young roots dying under a natural law; but it did not require the practical experience of this time of day to convince him to the contrary, and no one was ever more anxious than he to guard the young idea against building up systems of practice on a baseless, so-called-scientific foundation.

D. BEATON.

A WORD FOR THE MANETTI.

WHAT an awful pother there is just now about the poor Manetti. What has the poor thing done? Has it refused to grow at all? or has it refused to grow on any but the very best soil,

and in some particular places? Are not the ungrateful men aware, that for years it has been willing to do anything they wanted? If it were not neglected, is it not willing to grow at any time, either winter or summer? When it is called upon, has it not been hacked, and cut, and slashed in all sorts of ways, and yet it grows? And, after all, the only fault that is found with it is that it grows too fast and too luxuriantly; in fact, throws off, and leaves the puny bantling that is put upon it. Very well: We know that it does so in many cases; but can we ever have an advantage without some drawback? I fear not. One gentleman says, "There," said my friend the gardener, 'look, how well the dwarfs have done; and although they have not flowered, they have made so much wood they must necessarily do so next year.'" But, alas! poor innocent man, it was all the poor Manetti; and he further says, that his own did not even grow a few buds for him. His experience and mine differ very much; but I will at once say, that I grant that all the Roses would do better on their own roots; but how few possess the requisite knowledge that would lead them to prefer the small and puny-looking things that they would get for the same price as they get strong plants for, on the Manetti! Very few, indeed, can resist the temptation of a large plant, whether it be a Rose or anything else, when the price is the same; but could new Roses be had for anything like the same money, if it were not for the Manetti, by those who cannot afford to give a larger price? I think not; and as experience is the best, I will just tell what I did last summer by the aid of this poor "bubble" that is so much abused.

In the early part of July, I procured one plant of *Oriflamme de St. Louis*, and one of *Anna de Diesbach*. They had been grafted (and very short grafts too), perhaps in February, and had flowered, and if I had turned them out after they had been pushed on so fast, perhaps they would not have done much; but I wanted them for a particular purpose, and I nursed them, and they answered it. You see, by the aid of the Manetti I was enabled to get the plants at a time when, perhaps, if they had been struck, they would just about have got a bit of root—that would have been all. Of *Oriflamme de St. Louis* I put four buds on one Dog Rose standard, and three on another, all of which grew; and I budded six Manettis with single buds, all of which I have now growing in pots. Of *Anna de Diesbach*, I have also two standards on Dog Rose, and four dwarfs on Manetti; further, I got last December one plant on Manetti of *Anna Alexieff*. I got three grafts from it, which I grafted on my poor friend on the 4th January, 1860, along with one graft from one of the standards of *Oriflamme de St. Louis* budded last summer; and all four are now showing leaves and growing right away.

Well, now, six plants of *Oriflamme*, four of *Anna de Diesbach*, and three of *Anna Alexieff*. Are they not nice small change for a bit of trade among my friends, on the give-and-take system; and how could I have had them but for the Manetti? And is this nothing in its favour? I had sent, from near London, last summer, some buds of Tea-scented Roses, and I have now in the greenhouse in bud, and as luxuriant as they need be, *Auguste Vacher*, *Goubault*, *Madame Willermoz*, *Safrano*, and *Niphetos*. Cannot I get cuttings from them now? and is it not the cheapest and best way I could have had them, to bud them on the Manetti, and do as I like afterwards?

But when you work on the Dog Rose, do they never die? I think they do. I planted seven standards (Dog Rose), and six dwarfs (Manetti), on one bed in 1854; the standards are all gone except one, some time ago, and three of the dwarfs, *Robin Hood*, *Dr. Arnold*, and *Rivers*, are bushes 2 feet high and 2 feet through.

But I must stop. What I contend for is, that the Manetti has been a great boon to growers, by enabling them to sell more Roses, and sell them cheaper; but it is to amateurs like myself that it has done most, by enabling us to get new Roses, and for less money, and larger plants from which we can increase our stock as we like; and I have no doubt but it has done much to encourage and foster the wide-spread interest and pleasure with which the Rose is now cultivated.—W. P. RUDDOCK, *York Cemetery*.

VARIOUS QUESTIONS.

"I LIVE in such a remote district, that I can only hope to make a small greenhouse, 12 feet by 10 feet, gay by buying some seeds."—WIS.

1. "Will *Diosma* grow from seed?" Yes. Sow in sandy peat in a sweet hotbed, in March; or sow in April, in the greenhouse, and cover the pot with a square of glass until the seedlings are well

up. Then prick off four or five round the sides of a four-inch pot. These are chiefly interesting for the scent of the foliage and flowers. You could not have plants of much size from seeds under two or three years' growth. The plants are generally hardy, requiring merely to have a temperature a few degrees above freezing in winter. Loam and heath soil grow them well.

2. "Will *Commelina caelestis* flower this year from seeds sown in February?" Yes, if sown in a hotbed, pricked off and hardened off, by standing in the greenhouse until the end of May, and then transplanted into rich light soil out of doors. If there is no hotbed, it will be time enough to sow in the greenhouse in the middle of March, and most likely the plants would bloom in the autumn, in the greenhouse. The roots in either case kept over the winter in sand, as you would keep *Dahlia* roots, will bloom next season earlier and stronger, whether planted out in May, or kept in a cool greenhouse. Well grown the beautiful blue of these flowers is very striking. When once strong roots are established, the soil must not be too rich or strong; rank foliage will injure the effect of the flowers.

3. "Must *Mandevilla suaveolens* be planted in the ground, or will it grow in a pot?" Either way; but if there is a good length of rafters to cover, the pot would require to be large ultimately. Be sure of good drainage, and grow in loam and sandy peat. The finest plant I ever saw was at Stockwood. It has already been alluded to in these pages. One-half of the range was devoted to stove, and the other division to greenhouse plants. The *Mandevilla* was planted out at the middle division, and the stem taken along a wire longitudinally for nearly the length of the house, and when in bloom the plant was an immense white wreath. The flowering shoots were spurred back every winter.

4. "What is *Solanum capsicastrum*?" This is a neat little plant, chiefly valuable for producing in abundance its pretty little fruit in autumn and winter. It requires similar treatment to a *Capsicum*. Sow the seeds in a hotbed in March, or in the greenhouse in the middle of April. Prick off the seedlings, pot singly, and repot in a larger pot when necessary. Rich sandy loam will suit it well.

5. "Is *Quamoclit coccinea* pretty?" Yes. It is sometimes called *Ipomœa quamoclit*, and also, I believe, *Ipomœa coccinea*; but you will do little good with it, unless you can sow it in a hotbed in March. Prick off, pot off, and keep there until the middle of May, and then place and grow it in a warm corner of the greenhouse. Such plants would do equally well in a warm place out of doors in August and September. To get it to bloom well, you must forward it more in spring than you can do in a common greenhouse.

6. "I saw *Ipomœa rubro-cœrulea* in 1858, at Northwold, growing on the kitchen-garden wall, covering an Apricot tree, with 140 flowers open. Will it do in a greenhouse in a flower-pot?" Yes—but I should have been inclined to pity the Apricot tree. A great many rather tender things will do better for two or three months in sheltered places out of doors than they will do in houses under glass. The last time I grew this beautiful plant was many years ago, and in a smoky corner of the largest city in the world. One plant against a wall bloomed pretty well, and allowed to grow pretty much as it liked. I had three plants in pots, in a little greenhouse, treated differently, some grew against a rafter, some round a trellis, &c.; but one mode of treatment beat all the others, and this only will I mention. The seeds were sown in a hotbed in March, and the seedlings potted off as soon as handable in small 60's. As soon as these were full of roots, the plants had another shift, and a little stick put to each plant. All the little shoots that appeared were nipped off except the one leading shoot. By the time these pots were getting full—say the first week in May, the plants were removed to the warmest end of the greenhouse, and were shifted into a size larger pot. To encourage the shoot to wind itself, one end of a string was secured to the little stick spoken of, and the other end to a rafter in the house. As soon as the pots were filled with roots again, I shifted the plants finally into fifteen-inch pots, and shortly afterwards began to train the plants as I desired. Those that were to grow on a rafter had the pot set beneath it, and the string was fastened to and along the wire. Those that were to grow round a barrel-like trellis had the string with its strong one main shoot tied round the trellis. When the plant had filled the allotted space, the pinching-out of the point of the one main shoot caused abundance of lateral shoots to grow freely, which bloomed abundantly. If you keep all the shoots that come at first, you will soon cover a trellis or a rafter; but there is no method I have tried equal to the above for getting dense

masses of splendid flowers from this really very beautiful *Ipomœa*. If the seeds were sown in a greenhouse heat in April, it would be far on in the autumn before the plants bloomed. Though with care this plant might be kept over the winter, I would decidedly prefer treating it every season as a tender annual, helping it in its first stages in a stove-house or Cucumber bed, and growing and flowering it afterwards in the greenhouse, placing a few in any sheltered place out of doors. It would be well to be able to shade the flowers when in bloom, as each soon shrivels up and decays. In its young state grow it in fibry peat and sandy loam. As you shift it repeatedly, increase the loam until the last shift is nearly all fibry loam, and squeezed together as firmly as possible. Manure water may be given now and then when growing, but liberally when once the flower-buds begin to open.

"7. Will you recommend some showy greenhouse annuals?"—Yes; and more especially as it will meet the case of some other inquiries. All of them would be better if sown in sandy loam and peat in March, each sort in a four or six-inch pot, and covered with a square of glass, and then plunged in a gentle hotbed; bottom heat from 75° to 80°. If heat is not to be had, sow in April and May in the warmest end of the greenhouse. Cover with glass on the pots, and sow the seeds, so that when covered the covering will be an inch from the rim, and cover with a cloth or paper until the seedlings appear. The space of one inch will allow the seedlings of the smaller things to be strong before removing the square of glass altogether. I will throw those most worthy of attention into two groups, the first being the hardiest.

First group:—

- Acroclinium roseum*. Pretty Everlasting Rose flower.
- Balsams (mixed). Give plenty of air after first potting.
- Brachycome iberidifolia*. Pretty lilac-blue Cineraria-like plant.
- Calceolaria* (florists' herbaceous). Sow a few; but sow chiefly in August, to bloom in April and May.
- Cinerarias. Sow now and in May, to bloom in autumn and winter.
- Didiscus cœrulea*. Small blue flower.
- Eucnida Bartonoides*. Pretty low yellow plant.
- Dianthus Chinensis Heddewigii* } Pretty Sweet Williams.
- laciniatus* }
- Fenzlia dianthiflora*. Compact rose colour.
- Fuchsias (mixed).
- Gaillardia picta, Drummondii*.
- Isotoma axillaris*. Lilac-blue.
- Mimulus (mixed florists').
- Mesembryanthemum tricolor*, &c., does well in the sun.
- Nierembergia gracilis, filicaulis*, &c.
- Petunias (florists' mixed).
- Phlox Drummondii* and varieties, will be fine in autumn.
- Portulaccas (mixed). Like *Mesembryanthemums*, they like sunshine.
- Primula Chinensis*. Sow in April, for winter blooming.
- Rhodanthé Manglesii*. Beautiful Rose Everlasting.
- Schizanthus retusa*. Now a little; but sow chiefly in August and September.
- Verbenas (mixed).
- Tropæolum Lobbianum*. Varieties for autumn and winter blooming.

Second group, that like a little extra heat even better than the last, until they are potted off and growing freely:—

- Ageratum Mexicanum*. Blue.
- Browallia elata*. Blue, white, and other colours.
- Celosia cristata* (Cockscomb). Like heat until well grown.
- Cleome arborea*. Singular flowers.
- Clintonia pulchella*. Beautiful low trailer.
- Commelina caelestis*. Already mentioned.
- Cuphæa eminens* and *miniata*. Tubular, scarlet and yellow.
- Datura chlorantha flore pleno*. Yellow, sweet.
- *Wrightii*. Double white.
- *Meteloides*.
- Dolichos lignosus*. Fine climber.
- Gomphrena globosa*. Globe Amaranths, different colours.
- Heliotropium* (mixed).
- Hibiscus angulosus*.
- Ipomœa limbata elegantissima*.
- Lobelia speciosa*. Low, blue, and beautiful; many other colours.
- Lophospermum spectabile* and *Hendersonii*. Climbers.
- Maurandya Barclayana* and others. Climbers.
- Martynia fragrans*. Noble-looking plant.
- Spraguea umbellata*. Pretty rose, low-growing plant.

Thunbergia alata, Americana, aurantiaca, lophantha, or *alba*. These require strong moist heat to raise the seeds; but after June the plants will flourish well in a greenhouse, but must have plenty of the syringe.

A very small packet of each of these would be quite enough to stock your greenhouse, and furnish you with extra plants to plant out of doors. If great variety were your object this would thus be cheaply secured. Were I in your case, however, with such a small house for the first season, I would confine myself chiefly to sowing, now or in March, *Mignonette* for early blooming; *Cinerarias* and *Primulas* for winter ditto; sowing again in May and June *Balsams*, *Cockscombs*, *Globe Amaranths*, *Browallias*, *Daturas*, *Petunias*, *Phloxes*, and *Mimulus* for summer blooming, along with some *Ipomœas* and *Thunbergias* if there is heat to raise them. In July sow *Mignonette* for autumn and winter; and in August sow again for spring. In the same month sow *Schizanthus* and *Calceolaria* for early spring blooming. Some hardy annuals, such as *Collinsia bicolor*, may be so used. If you look at some recent articles you will perceive what permanent greenhouse plants you may easily raise from seeds; but few of these will bloom until they are of some age. R. FISH.

DIANTHUS HEDDEWIGII SEEDLINGS—

MALADORE RANUNCULUSES—LOBELIA SPECIOSA CUTTINGS—
SOAKING SEEDS IN HOT WATER.

I HAVE some *Dianthus Heddewigii* seedlings, which were sown in September. They are at present small, delicate-looking affairs, about three inches high; I am anxious to know how I am to go on treating them. They are in a greenhouse, which will serve as a vinery when the plants go out of it in May. Should I pot the *Dianthuses* separately, or keep them as they are, four in a pot, till May, and then turn them into a bed in my grass garden? If I were to shift them once or twice, and plunge them in the open border in an eight-inch pot, would they flower well, and answer for bringing into a drawing-room in July?

Is there a separate kind of *Ranunculus* called *Maladore*? I have some very strong-growing *Ranunculuses*, with large, handsome blossoms, both double and semi-double; and some people tell me they are *Maladores*. I never heard of such a kind, and see no mention of them in any trade list. They seem much more hardy, and increase much more rapidly than any other kind.

I have several pots full of *Lobelia speciosa* cuttings very nearly rooted. I wish to know what treatment I should give them, before my *Ranunculus*-beds are ready to receive them in May, or the beginning of June. Should I prick them out into pans and nip them back, or let them grow a-head?

I asked you some little time ago how I ought to manage my bedding plants, *Verbenas*, *Calceolarias*, &c., as the beds in which I wished to place them would not be ready till the *Ranunculuses* were out of bloom. You told me to pot them all in large pots. I wish to know whether it will do equally well, if I make a bed of light, moory compost, put a Cucumber-frame over it, and plant the *Verbenas*, &c., in rows in it, and then transplant them from this, when the *Ranunculus*-beds are ready to receive them?

Should the seeds of *Datura chlorantha* be soaked in water before they are sown? And when you talk of the water that seeds are soaked in being such and such a temperature, 120° for instance, or tepid, do you mean only that it should be that when the seeds are put into it, or that it should be kept at that all the time the seeds are soaking?—A SUBSCRIBER.

[At the end of March plant out, separately, all your plants of *Dianthus Heddewigii* which are now in pots in the greenhouse; and as they have been long in comfortable quarters, hoop over them and throw mats over the hoops every cold night till the frost is over, and it is time for bedding out. In short, treat them as all bedding *Calceolarias* ought to be treated in the spring. In May, when your big pots and your little ones are released from all bedding stuff, you may take up half a dozen of these new and enormously large-flowered Pinks, pot them as you propose, keep them shaded till they take fresh hold, and then plunge the pots on a Vine, Peach, or any south-wall border, and see they do not want for water. When they bloom, you can remove them; but unless the drawing-room is open as a windmill, the plants will soon go weak and spindly. And being on the subject, after seeing and studying the whole process about this extraordinary new Pink, we may state fairly and practically, that there is not the smallest or the slightest difference in the whole

treatment and management, between this and the common Indian Pink. It will come from seeds sown in the open ground in April, and bloom the next autumn, or may be sown in autumn, secured from frost, to be planted out at the end of spring, and to bloom early in July.

Maladore is a provincial foreign name for that kind of *Ranunculus*. Those you possess, are so called on the French side of the Pyrennees.

The *Lobelia speciosa* cuttings may be planted out of the pots in April, under a slight frame or cradle, and they will keep there till June or July, and remove from there then without losing a leaf or feather, if properly handled. *Calceolarias* the same; but *Verbenas* and *Geraniums* ought to be in pots, unless it is quite certain that they can be transplanted before the 20th or 25th of May. If they stay longer they will so root and grow as to injure them very much for one month after making up the beds.

It will not hurt any hard-coated seed to be steeped in warm water for ten or twelve hours before sowing—Sweet Pea for instance. And some seeds as those of the whole tribes of *Mimosa*-looking plants and trees, *Acacias* and the like, unless they are sown as soon as they are ripe, will do better to be soaked by pouring boiling hot water over them out of a teakettle; and after that, to keep the dish or basin so near the fire, that the water may not cool below 120° for ten or twelve hours, and some for twenty-four hours. To guess the heat of the water, 110° are as hot as any mortal finger can bear for half a minute, and 120° would scald a thatcher's fingers in half that time, or on the instant. But a thousand kinds of seeds will stand that heat for twenty hours in succession with impunity, and some hundreds will not vegetate after drying, on a long voyage, without that necessary scalding.]

CENTRADENIA ROSEA AND GESNERA ELONGATA CULTURE.

THE bit of plant sent by "A YOUNG GARDENER," is *Duranta argentea*. Chiefly interesting for its foliage.

In answer to the same correspondent, as soon as the *Centradenia* has done flowering, you may cut it in pretty freely, if you wish the plant to remain small; if not, merely shorten the points of the shoots, and repot when the fresh growth is breaking freely, using peat and loam, with little bits of charcoal and silver sand to keep the soil open. The plants will grow freely in the stove, and may be shaded a little in bright sun until the end of August; but, after that, they must be gradually inured to all the sun they can stand, and, ere long, the plants will be covered with their pretty little blossoms. By this mode, and by cutting also well back, the plants will bloom chiefly at one period. If little or no pruning is given, the plants will be almost constantly in bloom; but they will not bloom so densely as by the above mode.

The *Gesnera elongata* blooms best in the autumn and winter months. This known, the plant should be freely cut back when the flowering is over; kept rather dry and cool—say, from 45° to 55° for a couple of months, when the fresh shoots will begin to show; then it should be fresh potted, either in a larger or a similar-sized pot, and encouraged to grow on during the summer. Towards August and September, expose as freely to the sun, and give it a good deal of air, and, ere long, the scarlet flowers will appear. If you wanted a large specimen, prune back less, and tie out the old shoots, merely nipping out their points, and grow on instead of resting. The first mode is the best for neat small specimens.

SEEDLING SEA-KALE.

WILL Mr. Weaver say if the Sea-kale, which is sown in the month of March, will be fit to cover up in November of the same year for cutting at Christmas? If so, I shall destroy my present bed, which is very bad with canker. Is there more than one sort of Sea-kale?—A SUBSCRIBER FROM THE FIRST.

[Seedling plants may be grown so strong and large as to produce the very finest crowns to cover up the following November, to cut from by Christmas. They must be grown in good, deep, sandy loam, and attention paid to the early thinning out of the plants, and keeping the earth stirred among them to encourage their vigorous growth. If any doubt exists, then be on the safe side if you have a number of beds, or even one long bed. If the weather be fine during the last week of March or the first week of April, and you have the ground in capital order,

plant one-half with the best pieces of your old crowns, putting in three or four pieces, from four to six inches apart, to form the future bunches; and sow the other half with seeds at the same time, and well attend to both by earth-stirring during the early growth; but be careful not to injure a single leaf during the summer growth. If the above be well attended to I will venture to say all will be in a fit state for forcing in the following season, either by Christmas or afterwards. There is only one sort of Sea-kale.—T. WEAVER.]

PRUNING CUPRESSUS MACROCARPA.

I HAVE a *Cupressus macrocarpa* seven or eight feet high, planted in good loam. The lower branches of the tree grow very fast, but the upper ones do badly. I shall feel obliged if you can tell me whether pruning the lower branches would be likely to make the upper part of the tree do better, and how near to the trunk may they be pruned, and what time of year would you recommend for the operation?—N. C.

[No plant bears pruning better than *Cupressus macrocarpa*, and the end of April is about the best time to prune it, and all other *Cypresses*. It was a bad plan to allow any of the bottom shoots to contend with the leader. The whole family, and the common and Irish Yews are also given to make many leaders, and they should be stopped the first year; but, fortunately, they can be cut back at any age without risk or damage. The rule for cutting them back is to take the average spread of the common side-shoots, and to cut to the contending leaders to that average length, and to cut to a side-branch which grows outwards: by doing so there will be no gap in that part of the tree. See to them, also, in July, and stop any more attempts of that kind; and in April, when you do this, nip off the very point of every side-shoot all over the tree, up to very near the leader, and it is astonishing how soon that will tell on the vigour of the leader. Some people allow their young Cedars of Lebanon and their Deodars to do as your *macrocarpa* has done, to the scandal of the gardening craft. All Cedars bear the knife as well as the Yew.]

SOIL FOR THE MIMULUS.

REFERRING to the observations of Mr. Bennett on the *Mimulus*, p. 256. It is a plant I have long admired, particularly in Caernarvonshire, where it grows in some places as a weed, in great variety of colours, and remarkably fine.

At Port Madoc, it may be seen, self-sown, lining the gravel drive to the house of Mr. Humphrey's, in great brilliancy. On the city walls of Caernarvon, and on the garden and four walls (rubble) about Ruthin it is very beautiful; and I noticed, last summer, in a lady's garden near the foot of Snowdon, a particularly fine specimen.

In all the above instances its habitat combines a moist climate with a pervious bed; and in two of them, old mortar must form the staple of its sustenance. I notice this as strikingly illustrating the value of the mode of treatment of the plant suggested by Mr. Bennett.—K.

CONJURING WITH HENBANE SEED.

BEING at the meeting of a few scientific gentlemen a few days ago, where we were doing the best to amuse ourselves and one another, one of the gentlemen bet a wager he would draw a quantity of small grubs out of any person's hollow tooth.

He procured a stone slab, a pot-funnel, and a few Henbane seeds. He then obtained a white-hot piece of coke, placed a few Henbane seeds on the top, and inverted the funnel over all. When the smoke began to appear, he placed his mouth to the end for a few minutes. He then turned the funnel up, and there were seen seven or eight small white grubs with black heads. One moved to the distance of two inches.

When I arrived home I tried the experiment myself, but substituting my thumb instead of my mouth. The result was precisely the same. My first thought was, that it might be the hyoscyamine that had volatized by the heat; but a cursory examination by the microscope showed me that these pseudo-grubs were the plumules of the seeds, the little black heads being the radicles, the cotyledons splitting open by the heat. The movement of some was caused, no doubt, by the temperature of the funnel. The seeds employed were those of the common Henbane (*Hyoscyamus niger*).—T. COLLIER.

INFLUENCE OF ASPECT ON PEACHES IN THE NORTH OF IRELAND.

I STATED in my former communication that the experiment which I had tried with my Peach trees was considered conclusive. Failing, however, with one conclusive experiment to convince some objectors, that "seeing is believing," I tried another.

Having another wall with a south-west aspect from which I had grubbed up some old Plum trees, I decided, with the concurrence of my employer, on planting it with Peaches; and being desirous of covering it as quickly as possible, I removed the trees from the other south-west wall to plant against it.

In taking up those trees I attentively observed their roots. They had filled the soil in every direction; so much so as to enable me to remove them with very large balls of earth. They were observed to be in a ripened state nearly to the points, having that peculiar brown appearance so indicative of roots which had performed their functions well, and had gone early to rest.

I next removed those from the south-east aspect to supplement those taken from the south-west wall. Their roots were also observed with attention. And in what state did I find them? They were perfectly white for a length of six or eight inches from the points, as brittle as recently-formed roots always are, and in as unripe a state as the few twigs which they had helped to form.

Those trees being planted against the wall having a south-west aspect, were watched with some little anxiety to see how they would comport themselves in their new situation. Their constitutions being impaired by the aspect of the wall against which they had previously been planted, I expected but small success from them.

In the month of April, and the early part of May, their appearance was rather unpromising. But as May wore on they began to improve, and continued to do so till autumn, by which time they assumed the same healthful appearance as their predecessors; thereby proving my second experiment still more conclusive than my first. The only difference between them and their predecessors was, that they had frittered away a season in unsuccessful attempts to make headway, or rather heads, and were, in consequence, a season's growth behind their brethren.

I need hardly say, that in my case it was neither ungenial soil nor inefficient drainage, but an unsuitable aspect that had been the cause of failure.—G. C., *Armagh*.

FLUE HEATING DEFECTIVELY.

I ERECTED a small greenhouse some time since. It is heated by a small furnace and flue (the flue is at the back of greenhouse), by which I cannot get heat enough to keep the frost out. I have altered it several times, by raising the flue higher above the furnace, and making it smaller, but all to no purpose. With the late frost, the thermometer went down to 30° or lower. Before the chimney was heightened, the fire would go out altogether, especially when the wind blew in one direction.—A NINE YEARS' SUBSCRIBER.

[If your flue merely passes once through the back of your house, we consider that it is too small, even if it be all exposed, which we presume it to be. It would have told more if it had been placed in front. The furnace and rise into the flue are all right. If your fuel, however, has any smoke at all, we should have little faith in your two-inch square wooden chimney keeping up the draught. We think that narrowing chimnies as they rise to prevent back draught, is a mistake. At least, we know of some houses where the chimnies are built on the opposite principle, and not one of them smokes. We presume the flue is four inches wide and seven deep. If so, we would increase or double the width, as the heat will radiate chiefly from the top. If the floor had been nine-inch tiles, and the furnace had been low enough, we should have preferred taking a five-inch flue below the floor, in at one end, along the front, and out at the other end. Could you not heat it from the kitchen boiler? Placing a mat against the glass in front of the house on extra cold nights might enable you to dispense with any alterations. In such a small house we certainly should have preferred a small iron stove inside, with a metal pipe to take the fumes and smoke outside. But as the flue is there, it would be best to make the most of it. We were called to look at a similar house, but the flue was in the wall, and,

therefore, presented only one heated surface to the atmosphere of the house. We should like to know how you arranged the inside of such a narrow house. Some amateurs would have many plants in such a place, and some could not find the way to move in it.]

CAPE PLANTS.

"ROSE" has had seeds from the Cape of Good Hope given to her. Are they worth taking trouble with? and what are they like?—Looking on every plant as beautiful, I can hardly be in a position to answer the first, unless I know "ROSE's" tastes and means; and the second question is quite as difficult, as I believe "ROSE" must well know, if she has opened her ears, and heard the varied remarks and similitudes relative to the flower's inherent beauties whose name she bears. With respect to the first query, I may merely state, that lately two groups of greenhouse plants were given. The first, the hardier and rougher, though by no means deficient in beauty; and the second, the more prized plants, because they were more difficult to manage; and, very likely, just on that account, were considered to be more beautiful. Thorough-going patterns of married ladies will sometimes tell their happy husbands, with just a spice of earnestness in their sly bantering, "that they think they would be more thought of if they had stuck themselves up a little more, and stood more upon their dignity." It is no use for any man to contend with such artful inuendos; his true policy is to make the *amende honorable*. But, after all, there is a spice of truth in it as respects our sisters of humanity, and our lovely pets among the floral creation. How many a pretty plant is neglected just because anybody may have it! and we waste our pains on some miffy miserable thing just because few, comparatively, can manage to keep it alive at all. It stands aloof—keeps its dignity, and wise men and fair women must woo, and flatter, and coddle to induce it to give them a semblance of a smile of recognition. Far more beautiful plants would present faces brimful of smiles all over in gratitude for the smallest attention; but because they are more accessible, their beauty and their fragrance are alike neglected. Some of us have reason to be glad that all the really best things in this world are rather common, and therefore I will glance over the rather strong-growing list of beauties which "ROSE" has received.

Cytisus tomentosus.—A nice compact shrub, with yellow flowers, having the appearance of a go-between of a Broom and a Laburnum. Soak the seeds in warm water before sowing them, and give the plants peat and loam to grow in, or sandy loam and a little leaf mould. Temperature in winter not below 35°. I would try some of the seedlings the second season against a wall out of doors. I should not be surprised if the plants proved to be *Sophora tomentosa*; but if so, similar remarks will apply.

Chironia grandiflora.—A semi-herbaceous evergreen little shrub, or stiff herbaceous plant, growing in peat and loam to a height of from eighteen to twenty-four inches, and producing its rose-coloured flat flowers at the ends of the shoots. Prune it back freely when done flowering, and keep it not below 40° in winter.

Dolichos lignosus.—A pretty greenhouse climber, producing in great abundance branchlets of purple flowers much in the same way, but not so large in size, as the Scarlet Runner Bean. Soak the seeds before sowing.

Elichrysium speciosissimum.—I do not think this is a common plant yet. I have read of it somewhere as a strong-growing plant, producing great numbers of Daisy-like white everlasting flowers. Will require heath soil and loam, and a temperature in winter not much below 40°.

Gardenia Thunbergii.—The double varieties of *Gardenia radicans* and *florida* are well known as Cape Jessamines. The above is a stronger-growing plant than either of them, but without the double flowers. It should be grown in peat and loam, and have a little higher temperature than a cool greenhouse to start it into flower, and then again to start it into growth when the flowering is over.

Leucodendron argenteum.—Belongs to the Protead group, and is chiefly interesting for its beautiful silvery foliage. Is more of a tree than a shrub. Grows in loam and peat, and should not be below 38° in winter.

Leucospermum tottum.—Belongs to the same hard, leathery-leaved group as the last. Grows about three feet in height, and has yellowish flowers.

Polygala bracteata.—The slender shoots of this plant grow from three to six feet in height, and produce small purple flowers freely, with scarce the appearance of leaves. Grow in three-parts

heath soil and one of loam. Temperature in winter not under 38°.

Podalyria sericea.—A neat little shrub with small silky-like leaves, and small purple Pea-blossomed flowers, produced freely along the shoots. Grow in peat and loam; and if you have several plants, turn out the half of them against a wall or fence in the second summer.

Psoralea spicata.—Produces bluish Pea-blossomed small flowers. Treat as the last, should not be below 45° in winter.

Psoralea pinnata.—Prettier. Treatment the same. Colour of flowers much the same.

Protea speciosa rubra.—Produces purplish-like blooms; but, like *Leucodendron*, is chiefly grown for the foliage. Cultivate in loam, peat, and charcoal, with a good portion of silver sand.

Phlomis Leonurus.—This is a synonyme for *Leonotis Leonurus*, and produces fine masses of scarlet *Salvia*-like flowers. It grows well enough out of doors in summer, and blooms like many *Salvias* in the greenhouse in winter. Give light, rich sandy loam at first, and rich, heavy loam at last. I rather want to get hold of this plant, or seeds of it, myself. It is a fine autumn plant though a little rough in its appearance.

Sutherlandia frutescens.—Sometimes called *Colutea frutescens*, is a somewhat hoary little shrub, with elegant foliage and very showy, largish, scarlet, Pea or *Coronilla*-like flowers. Will grow freely in loam and peat. Temperature in winter not under 35° in greenhouse. Some of the seedlings should be turned out in sheltered places after the second summer.

To raise these seeds, a little hotbed should be prepared by the middle of March; and if there is room enough, every kind should have a four-inch pot to itself. Fill the pot nearly half full of drainage; then with rough peat and loam, in pieces as large as Beans for an inch; then the same material a little finer; and then a layer finer still, the upper layer being nearly an inch below the rim of the pots. Then sow and cover in proportion to the size of the seeds, doing no more than cover them. Then plunge the pots in the bed, having a bottom heat of from 70° to 80°; and cover each pot with a small square of glass, and shade with a piece of paper over all. In eight or ten days, but not before, apply water as warm as the bed. As the seedlings appear, raise the square of glass just on one side, and by-and-by take it off altogether. Then raise the pot out of the bed, and inure the young things gradually to more air and a cooler atmosphere until you need to pot them off. Keep the plants closer, and shaded a little from bright sunshine when first potted off, and inure them by degrees to stand exposed to the full sun in autumn before housing for the winter.

R. FISH.

NEW OR RARE GREENHOUSE PLANTS.

I HAVE selected the following plants as being worthy of culture, either for their beautiful flowers or for fine foliage. Many of them are of recent introduction, and others are as yet rare in collections. They are all hardy enough for the greenhouse or conservatory.

AGAPETES BUXIFOLIA (Box-leaved *Agapetes*).—This plant is of a neat, dwarf, branching habit, with Box-like leaves, and numerous flame-red flowers of a tubular shape, an inch long, with spreading pointed lobes of a rosy red colour.

ACACIA ERIOCARPA (woolly-seeded *Acacia*).—Native of Australia, with deep golden flowers in May. It is of a good habit, and free to flower. A finer species than *A. grandis*.

BARCLAYA SYRINGÆFLORA (Lilac-flowered *Barclaya*).—A beautiful shrub from Moreton Bay in Australia, with flowers in the same form as a Lilac, and of an orange-yellow colour. The plant is of a neat bushy habit.

BEJARIA (pronounced *Beharia*) *ÆSTUANS* (southern *Bejaria*).—A lovely shrub from the mountains of Mexico, with heads of tubular flowers of a glowing rose colour.

BEJARIA COARCTATA (crowded *Bejaria*).—A compact Box-leaved shrub, with close heads of bright purple flowers.

CALLICARPA PURPUREA (purple *Callicarpa*).—A Chinese plant, sent over by Mr. Fortune. Its beauty consists in its producing very numerous bright shining berries, of a rich violet-purple hue, lasting through the autumn till past Christmas. It is also of a compact dwarf habit.

CALYPTRARIA HÆMANTHA (bloody-flowered *Calyptraria*).—A plant allied to *Melastoma*. It has rich, dark green foliage, with three distinct veins running its whole length. The flowers are large, and of a deep crimson colour. Its noble foliage and bushy habit render it an ornamental plant all the year round.

CORDYLINE INDIVISA (not-divided *Cordylino*).—This is a greenhouse beautiful-foliaged plant from New Zealand. The leaves are long and of a rich golden bronze colour, with the midrib broad and conspicuous, and towards the base of a crimson hue. The flowers are produced in a dense long panicle; they are white and bell-shaped. Altogether it is a very desirable plant.

DATURA CHLORANTHA (yellow-flowered *Datura*).—A strong-growing shrub, with ovate leaves and double yellow flowers, powerfully fragrant. Blooms all through the summer as freely as *D. arborea*.

DAVIESIA UMBELLATA (umbelled *Daviesia*).—Another addition to a pleasing genus from Australia, with small lance-shaped leaves, and yellow Pea-shaped flowers produced on the ends of each shoot in compact heads.

FUCHSIA SIMPLICICAULIS (simple-stemmed *Fuchsia*).—This appears to be a distinct species, with smooth, oval, lance-shaped leaves. The flowers are produced on pendulous branches. They are numerous, and of a rosy scarlet colour; the tube long and the limb spreading, with a corolla of the same pleasing colour. It is a native of Peru, and will be good to plant out in a conservatory to train up a pillar.

T. APPLEBY.

(To be continued.)

THE FRUITS AND FRUIT TREES OF GREAT BRITAIN.

No. XXVI.—WINTER NELIS PEAR.

SYNONYMES.—*Beurré de Malines*; *Bonne Malinaise*; *Bonne de Malines*; *Colmar Nelis*; *Etonneau*; *Fondante de Malines*; *Malinaise Cuvelier*; *Nelis d'Hiver*.

It rarely happens that a worthless variety of fruit ever obtains a very varied nomenclature; and hence the number of names which this pear has acquired during a comparatively short period testify to the extent of its cultivation and the high estimation in which it is held.



The fruit is below medium size; but when grown against a wall is sometimes three inches or more long, and two inches and three-quarters wide. It is of a roundish obovate shape, rounding from the middle towards the eye, and tapering abruptly towards the stalk.

Skin green at first, covered with numerous russet dots and patches of brownish-grey russet; but as it ripens it changes to greenish-yellow, and when grown against a wall it is of a clear pale yellow, with very few traces of russet.

Eye open, with erect rigid segments, and set in a shallow depression.

Stalk an inch or more in length, pretty stout, curved, and inserted in a round narrow cavity.

Flesh yellowish, fine-grained, buttery, melting, and very juicy, rich, sugary, and with a most delicious flavour.

A dessert pear of the greatest excellence, in use from November till February.

The tree is a small grower, hardy, and an excellent bearer. It forms a handsome pyramid on the quince stock, and is well adapted for bush culture. For orchard-standards it requires to be worked aloft on some stronger-growing variety, such as *Lammis*, *Summer Bergamot*, or *Swan's Egg*, its own habit being not sufficiently robust to form an orchard-standard of itself.

This variety was raised by M. Nelis, of Malines.

NOTES ON SOME BEDDING PLANTS.

THE idea of producing a tropical appearance in some part of the garden out of doors has lately been brought prominently before the readers of THE COTTAGE GARDENER. It is a capital idea, and should be thoroughly worked out. This end will be attained if gardeners will give us the fruit of their experience with regard to any plant which has produced "an effect" with them.

I have seen many kinds of Gourd succeed well trained over a rude rustic fence; but the finest effect I ever saw them produce, was when planted at the top of a terrace, and allowed to trail down a turf-covered bank facing the south.

The usual plan with the Cannas, and similar plants, upon the Continent, is to take them up in autumn and keep them quite dry under the stage of a greenhouse, or other convenient place, and to start them in a hotbed in the spring. They are seldom used in the same beds with Geraniums, Verbenas, or the like (even if they were, half their effect would be lost). The soil used for them would be too rich for most bedding plants. The usual plan adopted at places where they are grown to the greatest perfection, is to take out the soil to the depth of two feet and a half, to fill up with dung only partially exhausted, and cover in with part of the old soil. The plants are shaded for a few days after planting; with plenty of water they soon produce an appearance which is quite surprising to one who sees them for the first time. They do not always get such good treatment, it is true, but they well repay the trouble bestowed upon them when they do. *Canna discolor*, from the bronzy colour of its foliage is the great favourite, but it seldom, if ever, flowers. *C. Indica*, on the contrary, blooms well.

I recollect a circular bed in front of a mansion, around which the carriage-drive was carried. The centre was occupied by the variegated variety of *Arundo donax*, with five or six plants of Indian Corn next it; then a circle of *Canna discolor*; and the whole edged with *Begonia discolor*—a very good rival to the *Perilla Nankinensis*. I have never seen the effect of this bed surpassed. As a mass of foliage it was really grand.

In the same garden there was a walk crossing the lawn, on each side of which were small circles, and in these alternate pairs of *Humea elegans* and *Papyrus antiquorum*. The effect was charming. They were daily supplied with water, particularly the Papyrus. A few of them had, by way of experiment, received rations of manure water, and proved their gratitude for this by their greater luxuriance.

The red variety of the Castor-oil plant should never be lost sight of as an ornament to stand singly on the lawn. It should be raised from seed the previous year and kept during winter in a corner of a warm greenhouse. I doubt if any soil can be too rich for this fellow's palate; indeed, like an alderman, it would never attain its imposing appearance without high feeding.

Xanthosma violacea, with purplish stems and leaf-stalks, does well out of doors in summer, as do also several of the green-leaved Caladiums. One called *C. macrophylla*, produces four or five gigantic leaves like green shields, three or four feet in length.

I have tried *Musa Cavendishii* out of doors, but have always been disappointed by it. The leaves split up transversely into ribbons, as they are reported to do in their native country, and, consequently, look ragged and unsightly.

The pleasing character of the continental gardens is much enhanced by the introduction of festoons of climbing plants. *Pylogyne suavis* is often used in this way between standard Roses, or similar situations. I tried unsuccessfully to obtain this plant in England a few years ago, but it has since been introduced by Mr. Thompson, of Ipswich. Your lady readers would, I am sure, be pleased with its neat, graceful wreaths of closely-packed little leaves. The flowers are very minute and inconspicuous, its pretty habit is its great merit. It requires only

the ordinary bedding-plant culture—that is, it must be protected from cold and damp through the winter. In spring it is only necessary to plant it out and place wires or string in the position you wish the plant to assume, it does not even require tying.

By the side of walks in the public parks, festoons of the Virginian Creeper, or sometimes even the common Vine, are carried from tree to tree, and produce a very pleasing effect, particularly in autumn, when the leaves assume their brilliant colours. The *Wisteria sinensis* would suit for this purpose admirably.—KARL.

SUBSTITUTE FOR THE YELLOW CALCEOLARIA —FRENCH MARIGOLDS.

IT is always a pleasing duty to reply to a correspondent on any subject on which a difference of opinion exists; and my inquiry for a substitute for the Yellow Calceolaria having induced "A SUBSCRIBER," page 257, to recommend a Marigold or a Pansy for that purpose, I herewith, in the same friendly spirit, reply to the suggestion there made. At the same time I beg to thank him for his kind offer of a plant of the Yellow Pansy; but I fear it will be of little use to me, as the whole of the family, except the double ones, have been scarcely able to live through the dry summer we have had lately, and were at no time ornamental enough to deserve a place in the flower garden, where a long-sustained mass of bloom of a decided colour was wanting. But I will further explain, beginning with the Pansy.

For several years I grew a clear yellow Pansy named *Hon. Mrs. Harcourt*, of rather a robust growth, and in the months of April and May there was often a good display; but, the hot weather setting in, the plants invariably became mildewed, flowers became small, and finally the whole bed had a rubbishy half-dead appearance. This was prior to 1857, the first and warmest of our last three dry summers. The introduction of the Double Pansy about that time led to the Single one being discarded—or, in fact, they ceased to exist, the Yellow one being the last to give up. But with all deference to the opinion of "A SUBSCRIBER," I never at any time saw a bed of Pansies, or even a single plant, that could at all compete with the Calceolaria for brilliancy of colour. Pansies invariably open to the sun, and will consequently have their backs to the most important point in which by far the greatest number of flower gardens are viewed from—"the north." This essential feature disqualifies many other showy flowering plants as well as the Pansy. In fact, in the warm, dry, southern counties of England, the north side of a wall is the only place where I have ever seen a good bloom of Pansies after June; and but rarely have I seen them showy then. The flowers are never sufficiently numerous to hide much of the foliage, so that I fear Pansies cannot be accepted as a substitute. Let us now turn to the other plant mentioned by "A SUBSCRIBER."

YELLOW MARIGOLD.—I wish our correspondent had been more explicit on this head, as I have much more faith in this plant answering our purpose than the Pansy. There are three distinct varieties, I might say botanical species, of the Marigold—the Common, the French, and the African. The first of these is very showy so long as it lasts; but I have never seen it in good condition more than a month, and often much less. The French Marigold, however, is a more enduring plant, and it continues to flower until cut off by frost. Two or three years ago a dwarf variety of it was introduced, which probably is the one "A SUBSCRIBER" has grown, as he does not mention whether it was the Common or French one he had. I have not, however, grown it, but have seen it form a rather compact and pretty edging to something else; but the colours were mixed brown and yellow on the same plant, and consequently useless when clear and distinct colours are wanted.

While on this subject I may mention that the French Marigold may be propagated by cuttings in the autumn as freely as Verbenas; but it does not keep well through the winter, and in spring makes very tardy progress. So that, after all the trouble of keeping it, the plants so propagated do not flower any sooner than those raised from seed in the ordinary way. A favourite kind may be kept by this means; but I never could obtain a satisfactory result.

If a dwarf compact French Marigold of a bright yellow colour could be obtained by seed, and a certainty of that seed producing plants of the same colour again, we should have a rather formidable rival to the Yellow Calceolaria, and one well worthy of trying for; but the brown stripes or tips, however much they

may improve the appearance of individual flowers seen in isolated places, have but a poor appearance in a mass, more especially if that mass is one hundred feet or more from the observer. Clear distinct colours of the simplest kinds are alone admissible there; and the number of plants qualified for this is much smaller than is often supposed. More than three-fourths of the Verbenas in our lists, and many Petunias, mixed coloured Calceolarias, Heliotropes, Cupheas, and a host of others are unsuitable; while Scarlet Geraniums, Yellow Calceolaria (where it prospers), clearly defined colour in Verbenas, and some other things, are always entitled to a place. But the list is much reduced when we have to take such contingencies into consideration as the effects a very dry season or situation is likely to make, and also where a good display of flowers is expected from June to November; for in those cases where a great profusion is wanted only for a very short time—say in August, another class of flowering plants might be substituted. For be it remembered that a close dense mass of bloom throughout the whole season cannot be attained; and those anxious for a good display never wish for that dense mass of bloom which no soil or situation, however good, can continue to support in such a state of perfection. I mention this here to correct an erroneous opinion abroad, by which tourists and others who may be favoured with a sight of some of the finest flower gardens in the kingdom—say in August or the early part of September, when everything is in its prime, run away with the idea that the same display is to be seen every day from June to November. Such is not the case; and it is not prudent to allow a flower-bed to exhaust itself by a too profuse blooming at one particular time, for, be assured, a blank will follow.

While on this subject I may observe that I hope our all-but-matchless ornament of the flower garden, the Yellow Calceolaria, is destined to do us good service yet, as we may not have such a dry season again for some time as the three last have been, and, as I have repeatedly said in these columns, the plants live with me as well as in years gone by; but the long-continued dry summer checks their growth, and no flower-buds are formed until it is too late in the season for their being any use. In other respects the constitution of the plant remains as vigorous as ever, moisture alone being wanted to restore it to its former showy position. At the same time I may say that artificial watering is out of the question in my case, and the most suitable plants for the flower garden are those requiring little or no after-trouble when they are once planted; and if a plant to its other qualifications adds that of being able to withstand a long succession of dry weather, and flowers and blooms well, it more nearly approaches my ideas of perfection. The capabilities of the Nasturtium in the latter way led me last autumn to call attention to it as being likely to furnish us with a substitute for the Calceolaria, provided a good dwarf habit could be obtained, as I can bear testimony to the long-continued services of the common trailing one the past season; for, having occasion to plant two rows of something to act as screens to other objects, I sowed one of these with Nasturtiums, the other with Sweet Peas. The latter were certainly not ornamental more than ten days or a fortnight. After they were over I planted some Nasturtiums, which speedily got up and flowered long before the autumn set in; while the first row, in a situation inferior to that occupied by the Sweet Peas, were amongst the first flowering plants I had, and continued to the last ornamental and good. I am, therefore, in hopes this plant will furnish us with something suitable to our flower-beds; which, if it falls short of the Yellow Calceolaria for brilliancy of colour, will certainly excel it in point of endurance in dry seasons.—J. ROBSON.

HEATING A SMALL GREENHOUSE BY A STOVE.

I FIND in THE COTTAGE GARDENER for January 24th, 1860, page 256, "AN INQUIRER" ask the best mode of warming a small greenhouse. I will tell you how I have managed one (about the same dimensions) for the last six years. The first winter my employer bought one of Joyce's stoves for 12s., and used patent fuel. Before the winter was over the plants began to look badly, and many lost their leaves. One night I went in to make up the fire; I had a lantern, and set it on the floor, but before I had finished the light went out. I at once concluded all was not right, and something must be done. I took the stove to a tinman to make a new top, with a two-inch pipe

in the centre, long enough to reach through the roof (the stove standing in the centre of the house). I had a piece of glass taken out, and a piece of zinc the same size put in, with a hole to admit the pipe through. In lighting the fire I take some bright coals from the kitchen and put into the stove first, and then put in a little charcoal on that (the common charcoal). I then put it in the house, and when the charcoal is lighted put in some cinders; and if a fire is required all night, put on more cinders. In case of a hard frost, it will require attention. I have made up the fire at eleven o'clock at night, and found a fire the next morning at seven o'clock. This stove has answered the purpose well, and I think the cheapest way possible of heating a small house. If you think this worthy of notice, I shall be happy to give any further information if required.—WM. PLAYFORD.

CINERARIA MARITIMA FROM SEED.

HAVING heard a well-known nursery-gardener has questioned the practicability of raising that striking plant, the *Cineraria maritima*, from seed, to be useful for bedding-out purposes the same year, I thought I might be permitted to publish my own experience for the benefit of amateurs, gardeners and others, if you thought it advisable—viz., that I sowed in a hotbed in March, last year, a shilling packet of *Cineraria maritima* seed, pricked the seedlings out in May, as bordering round three beds, and I never saw anything more perfect than its growth and luxuriance during the whole summer; I should say it was never more than foot or a foot and a quarter in height.—G. B.

DIDSBURY LODGE,

THE RESIDENCE OF JOSEPH BULL, ESQ.

I HAVE frequently visited this place; and as I hold it to be a compact, well-laid-out, and well-kept place, in respect to the gardens, and also some points in gardening worthy of being known, I will endeavour to give a brief report of it from notes taken on the spot.

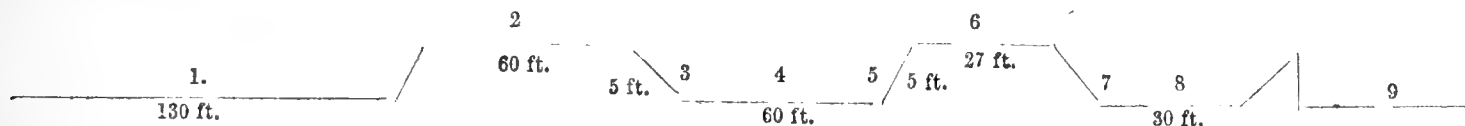
Didsbury Lodge is about six miles from Manchester, on the Cheadle road, and one mile from the latter place. The country round it is rather flat; but the mansion being considerably raised above the general level, the view from the windows of the living-rooms, and from the terrace-walk in front, is rather extensive, embracing the river Mersey, the broad road to Cheadle, and well-wooded fields of rich land. The mansion is of a fair size; and though built of brick, there are so many ornaments of stone that the effect is good.

The gardens, however, are my study and theme. There is an extensive range of hothouses, consisting of a Pine-stove at each end, a Peach-house, and a vinery, the latter used as a nursery for flowering plants to furnish a large conservatory adjoining the house when they are in bloom. The gardener's neat and roomy house (a pattern, by-the-by, for much larger places) is in the centre of this range of houses. Besides these, there are two large vineries in the kitchen garden behind them, and a large wide pit in a retired part, used to grow young specimen plants from New Holland, and also specimens of Geraniums, &c.

In front of the first-mentioned range of houses there is a sunk flower garden, of which the gardener was kind enough to give me a sketch, or plan, and also a list of plants that were growing in it at the time (last August). Mr. Eastwood is an intelligent, thinking man, and has often contributed to the pages of THE COTTAGE GARDENER. Behind the houses is the kitchen garden, bounded from the fields by a fruit-wall furnished with healthy trees, which, in ordinary seasons, produce good crops of fruit. Along the sides of the walks Apple, Pear, and Plum trees are planted. The soil is so good that they grow too rapidly, producing, hitherto, more wood than fruit. To counteract this, Mr. Eastwood has root-pruned them, and the effect is very visible. The trees are tamed, as it were, and have made but little wood, and are now covered with blossom-buds. At the end of this kitchen garden there is a covered walk formed with posts and strong wire, and covered with creepers. This walk has a branch leading to the east front of the house, and another that leads to a neat rosery. The centre beds filled with standards, and the outside beds with dwarfs—a very nice arrangement, for by this plan every tree is seen to the best advantage. The standards are old trees, and were not healthy. Last autumn they were all lifted, the soil renewed, the roots pruned, and then replanted.

The tops were not pruned at the time, and but very moderately last March, the idea being entertained that the greater the number of buds the greater would be the stimulus to root action, and the result has proved the idea was a correct one; for when I saw them they had quite recovered their vigour, and were blooming very fairly. Next spring they will be pruned more severely.

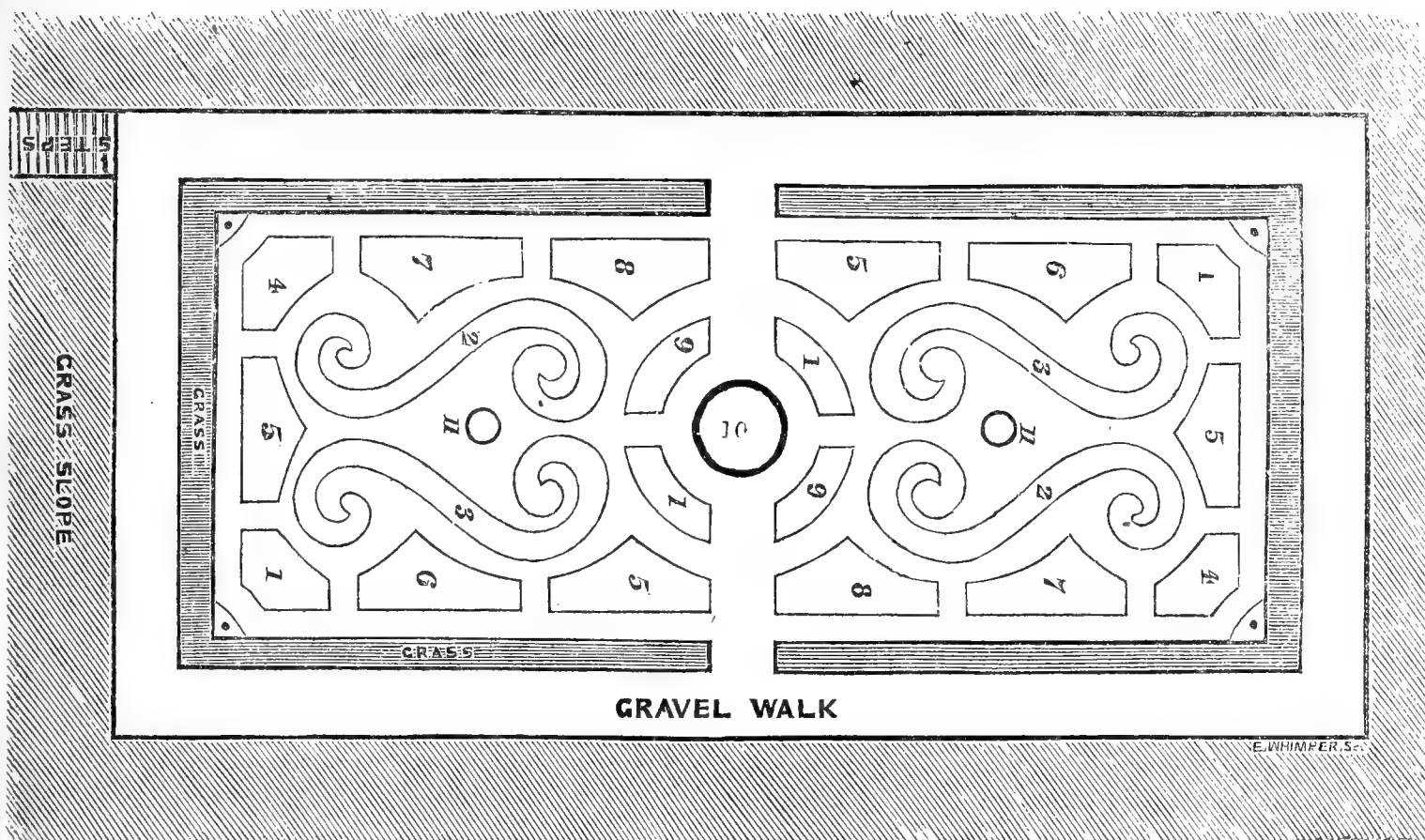
And now having given the reader, by the above brief description, a general idea of this beautiful place, I shall adopt my good friend Mr. Fish's excellent method of giving sections of the ground—a better plan I do not know, for by that method the intelligent reader will understand the salient points of any place at once.



1. Kitchen garden. 2. Range of hothouses. 3. Grass slope. 4. Sunk flower garden and terrace-walk. 5. Grass slope. 6. Bank of evergreens. 7. Grass slope. 8. Carriage-drive backed with evergreens. 9. Highway.

The flower garden here is well sheltered, having on the north side the range of hothouses, on the west and south banks of evergreens, and on the east the conservatory and the mansion. It is 60 feet wide, and 144 feet long. At the end next the house there is a flight of stone steps, and at the far corner a beautiful alcove. Sitting in that and casting your eye across the beds of flowers, the long S-shaped beds filled with scarlet and variegated Geraniums had the finest effect; the yellow Calceolarias and white Verbenas formed a relieving shade. There were four beds of *Mrs. Holford* Verbena, numbered on the plan respectively 1.

No. 2. *Tom Thumb* Geranium, two beds. No. 3. *Flower of the Day* Geranium, two beds. No. 4. Scarlet Verbena, two beds. No. 5. *Calceolaria floribunda*, four beds. No. 6. *Purple King* Verbena, two beds. No. 7. *Blue Bonnet* Verbena, two beds. No. 8. *Andrea* Verbena, two beds. No. 9. *Perfume Madeleine* Verbena. No. 10. Fountain, round which was planted *Géant des Batailles* Verbena, edged with variegated Alyssum. No. 11. Two vases; and at each corner there is an Irish Yew. The fountain, vases, and Yews admirably took off the flatness which would otherwise have been visible and objectionable.



The beds are all edged with Box, and the walks between are gravel, and there is a broad margin of grass between the broad gravel-walk and the others. This margin of green adds greatly to the beauty of the picture when viewed from the elevated terrace-walks. The only fault in the plan is, I think, the walks amongst the beds being too narrow. I am certain crinoline has no business there.

I was much pleased with the health of the flowers in the beds. The Calceolarias were quite a hit. The way they were arranged is good. A stock of plants are kept in a reserve-bed in the kitchen garden; and when any plants in the beds showed sickness, they were removed immediately, and fresh soil and fresh healthy plants from the reserve-bed carefully lifted and put in their places. This is much better than planting them out of pots; because, kept in pots so long, the roots are so matted that they do not succeed at all, or at least not so well.

Celery.—I noted in the kitchen garden some rows of extremely fine Celery, with sticks as thick as a man's leg across the calf. I inquired how they had been managed, and was informed they had been irrigated once a-week, and every other watering with liquid

manure much diluted. This abundant supply of moisture is the great means of keeping the Celery growing freely in the hottest and driest weather such as we had last summer. The water was not merely poured out of a watering-pot, but the trenches were filled full of it, thus thoroughly soaking the ground; a method necessary in such ground—a dry, light soil as is here.

Peas.—The last summer, Peas, in general, were a failing crop, much troubled with mildew. In order to prevent these two evils, Mr. Eastwood removed the soil (previously heaped up in earthing up the rows of Peas), so as to form a trench on each side of the rows. This trench he filled with water in the same way as the Celery-trenches. The effect was astonishing. I saw the Peas green, healthy, and bearing good crops in the hot dry months of July and August, and no mildew made its appearance through the season. Is not this proof sufficient that mildew is caused by a want of moisture? This best of all green vegetables is worthy of all this care and trouble wherever the ground will allow its adoption.

Pine Apple.—This fine fruit is grown here to great perfection. One house is planted out in the same way they are managed at

Trentham, and the other is filled with fruiting plants in pots. From what I noted, I really could see no difference in the size and quality of the fruit. Mr. Eastwood seems rather inclined in favour of the pot system.

My space will not allow me to say much about plants. Sufficient it must be, to state that there are some good specimens of variegated plants; Azaleas and Heaths grown in the vineries and Pine-stoves, certainly not the best habitations for them, and all the more creditable to the management.—T. APPLEBY.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 306).

PLUMS.

Empress. See *Blue Impératrice*.

Fair's Golden Drop. See *Coe's Golden Drop*.

Felleberg. See *Italian Quetsche*.

Florence. See *Red Magnum Bonum*.

Flushing Gage. See *Imperial Gage*.

Fonthill. See *Pond's Seedling*.

Fotheringay. See *Fotheringham*.

FOTHERINGHAM (*Fotheringay*; *Grove House Purple*; *Red Fotheringham*; *Sheen*).—Fruit medium sized, obovate, with a well-defined suture, which is higher on one side than the other. Skin deep reddish-purple on the side next the sun, and bright red where shaded, covered with thin blue bloom. Stalk an inch long, not deeply inserted. Flesh pale greenish-yellow, not juicy, sugary, with a pleasant subacid flavour, and separating from the stone. Shoots smooth.

A good dessert plum. Ripe in the middle of August.

Franklin. See *Washington*.

Friar's. See *Cheston*.

FROST GAGE (*American Damson*; *Frost Plum*).—Fruit small, roundish-oval, and marked with a distinct suture. Skin deep purple, strewed with russet dots, and covered with a thin bloom. Stalk about three quarters of an inch long. Flesh greenish-yellow, juicy, sweet, and rather richly flavoured, adhering to the stone. Shoots smooth.

An excellent little plum. Ripe in October. The tree is a great bearer.

Frost Plum. See *Frost Gage*.

GENERAL HAND.—Fruit very large, roundish-oval, marked with a slight suture. Skin deep golden yellow, marbled with greenish-yellow. Stalk long, inserted in a shallow cavity. Flesh pale yellow, coarse, not very juicy, sweet, and of a good flavour, and separating from the stone. Shoots smooth.

A preserving plum. Ripe in the beginning and middle of September.

German Gage. See *Bleeker's Yellow Gage*.

German Prune. See *Quetsche*.

German Quetsche. See *Quetsche*.

GISBORNE'S (*Gisborne's Early*; *Paterson's*).—Fruit rather below medium size, roundish-oval, marked with a distinct suture. Skin greenish-yellow, but changing as it ripens to fine amber, with a few crimson spots, and numerous grey russet dots interspersed. Stalk half an inch to three quarters long, inserted in a very shallow cavity. Flesh yellow, firm, coarse-grained, and not very juicy, briskly acid, with a slight sweetness, and separating from the stone. Shoots downy.

A cooking plum. Ripe in the middle of August. The tree is an early and abundant bearer.

Gisborne's Early. See *Gisborne's*.

Gloire de New York. See *Hulings' Superb*.

Golden Drop. See *Coe's Golden Drop*.

Golden Gage. See *Coe's Golden Drop*.

GOLIATH (*Caledonian*; *St. Cloud*; *Steers' Emperor*; *Wilmot's Late Orleans*).—Fruit large, oblong, with a

well-marked suture, one side of which is higher than the other. Skin deep reddish-purple, but paler on the shaded side, and covered with thin blue bloom. Stalk three quarters of an inch long, inserted in a deep cavity. Flesh yellow, juicy, brisk, and of good flavour, adhering to the stone. Shoots downy.

A fine showy plum, and though only of second-rate quality for the dessert, is excellent for preserving and other culinary purposes. Ripe in the end of August. This is sometimes, but erroneously, called *Nectarine Plum*.

Gonne's Green Gage. See *Yellow Gage*.

Great Damask. See *Green Gage*.

GREEN GAGE (*Abricot Vert*; *Bradford Green Gage*; *Brugnon Green Gage*; *Damas Vert*; *Dauphine*; *Great Green Damask*; *Grosse Reine*; *Ida Green Gage*; *Isleworth Green Gage*; *Mirabelle Vert Double*; *Queen Claudia*; *Reine Claude*; *Reine Claude Grosse*; *Rensselaer Gage*; *Schuyler Gage*; *Sucrin Vert*; *Tromphe Garçon*; *Trompe Valet*; *Verdacia*; *Verdochio*; *Vert Bonne*; *Verte Tiquette*; *Wilmot's Green Gage*).—Fruit medium sized, round, and a little flattened at both ends; dimpled at the apex, and marked on one side by a shallow suture, which extends from the stalk to the apex. Skin tender, yellowish-green, but, when fully ripe, becoming of a deeper yellow, clouded with green, and marked with crimson spots, and covered with thin ashy-grey bloom. Stalk half an inch to three quarters long, inserted in a small cavity. Flesh greenish-yellow, tender, melting, and very juicy, with a rich, sugary, and most delicious flavour; it separates freely from the stone. Shoots smooth.

One of the richest of all the plums. Ripe in the middle and end of August.

Grimwood's Early Orleans. See *Early Orleans*.

Grosse Luisante. See *White Magnum Bonum*.

Grosse Reine. See *Green Gage*.

Grosse Rouge de Septembre. See *Belle de Septembre*.

Grove House Purple. See *Fotheringham*.

GUTHRIE'S APRICOT.—Fruit above medium size, roundish-oval. Skin yellow, strewed with crimson dots, and covered with thin bloom. Stalk rather long, set in a small depression. Flesh yellow, rather coarse, juicy and sweet, adhering to the stone. Shoots smooth.

A second-rate dessert plum. Ripe in the end of August.

Guthrie's Aunt Ann. See *Aunt Ann*.

GUTHRIE'S LATE GREEN.—Fruit above medium size, round, marked with a suture, which is swollen on one side. Skin yellow, clouded with green, and covered with a thin bloom. Stalk three quarters of an inch long, inserted in a small cavity. Flesh yellow, firm, not very juicy, but exceedingly rich and sugary, adhering slightly to the stone. Shoots smooth.

A very fine dessert plum, rivalling the Green Gage, and ripening about a month later—the end of September. The tree is hardy, and a good bearer.

Hampton Court. See *Early Orleans*.

Howell's Large. See *Nectarine*.

HULINGS' SUPERB (*Gloire de New York*; *Keyser's Plum*).—Fruit very large, roundish-oval, marked with a shallow suture. Skin greenish-yellow, covered with a thin bloom. Stalk short and stout, inserted in a small round cavity. Flesh greenish-yellow, rather coarse, but rich and sugary, and with a fine brisk flavour; it adheres to the stone. Shoots downy.

A fine, large, and richly-flavoured plum. Ripe in the end of August.

ICKWORTH'S IMPÉRATRICE (*Knight's No. 6*).—Fruit large, obovate. Skin purple, marked with yellow streaks. Stalk stout, an inch or more in length. Flesh greenish-yellow, tender and juicy, with a rich, sugary flavour, and adhering to the stone. Shoots smooth.

An excellent late dessert plum. Ripe in October. It will hang till it shrivels, and is then very rich in flavour.

Impératrice. See *Blue Impératrice*.

Impératrice Blanche. See *White Impératrice*.

IMPERIAL GAGE (*Flushing Gage*; *Prince's Imperial Gage*).—Fruit above medium size, oval, marked with a distinct suture. Skin greenish-yellow, marked with green stripes, and covered with thick bloom. Stalk an inch long, inserted in a small, even cavity. Flesh greenish, tender, melting, and very juicy, with a rich and brisk flavour, separating from the stone. Shoots slightly downy.

A dessert plum. Ripe in the middle of September.

Imperial Diadem. See *Diaprée Rouge*.

IMPERIAL OTTOMAN.—Fruit below medium size, roundish. Skin dull yellow, covered with a thin bloom. Stalk slender, curved, three quarters of an inch long, inserted in a slight cavity. Flesh melting, juicy, and sweet, adhering to the stone. Shoots slightly downy.

An early dessert plum, ripening in the beginning of August.

Impériale. See *Red Magnum Bonum*.

Impériale Blanche. See *White Magnum Bonum*.

IMPÉRIALE DE MILAN (*Prune de Milan*).—Fruit large, oval, somewhat flattened on one side, where it is marked with a rather deep suture extending the whole length of the fruit. Skin dark purple, streaked and dotted with yellow, and covered with thick blue bloom. Stalk about an inch long, inserted in a narrow and rather deep cavity. Flesh yellowish, firm and juicy, richly flavoured and sweet, with a slight musky aroma, and adhering to the stone. Shoots smooth.

An excellent late dessert and preserving plum. Ripe in the beginning of October.

Impériale Rouge. See *Red Magnum Bonum*.

Impériale Violette. See *Red Magnum Bonum*.

Irving's Bolmar. See *Washington*.

(To be continued.)

TO CORRESPONDENTS.

FLOWER GARDEN PLAN (*Mrs. Grattan Guinness*).—A very beautiful plan by Mr. James Beaton, gardener, Beaumont, near Dublin. The planting is well done; but that style is obsolete. No. 1 must be your best variegated Geranium, edged with a good band of *Lobelia speciosa*, or *Baron Hugel* Geranium—say the latter. Then 6, 7, 8, 9, clear yellow, *Calceolaria aurea floribunda*, and 14, 17, 20, 23, brightest scarlet—say *Tom Thumb*, any pair of them, the other two *Masterpiece* Geranium. Do not risk 13 to match 11, which is *Oenothera macrocarpa*. *Gazania splendens* will be better. The rest will do very well as you have them. *Linum grandiflorum* will never do in an arrangement like this, and Ageratums, 27, 29, will be too faint next light Verbenas. We would put the brightest purple or rosy Petunias, instead of Ageratum, for perfect harmony of contrast.

REMOVING GREENHOUSES (*C. E. T.*).—If the greenhouses are so fixed as to be, in legal phraseology, attached to the freehold, the landlord may prevent the tenant removing them, although that tenant may have been at the sole expense of erecting them. It is always the wisest plan to have a written agreement with the landlord before erecting such structures. We should not hesitate in removing the entire greenhouse detached from the house, but taking care to leave the brick foundation undisturbed. The greenhouse with its rafters let into the wall of the house seems to require more consideration; but, at all events, you may remove all the glass-sashes from it. The mildest proceeding is usually the best; therefore, we recommend you to depute some friend to negotiate with your landlord.

EUGENIA UGNI (*Carig Cathol*).—The generic name *Eugenia* was given nearly a century since by Willdenow, a German botanist, and he gave it in honour of Prince Eugene, of Savoy, a patron of botany. *Ugni* is the name given to the plant by the natives of South Chili, where it grows wild. The Spaniards there call it *Myrtilla*.

NETTING FOR FRUIT TREES.—*T. K.* wishes for information relative to netting for protecting fruit-tree blossoms. He asks, "Which is the best to protect them from frosts, and the fruit from wasps?" What fruit trees exude gum, and from where? Gishurst Compound is only to be applied when insects or mildew makes its appearance.

CONFERE.—In *THE COTTAGE GARDENER* I frequently see advertisements, by Mr. Stevens in particular, of sales by auction of cones and seeds of this most interesting tribe. It is scarcely necessary to remark that such sales are quite beyond the scope of country gentlemen, living hundreds of miles from the metropolis, who may wish to obtain seeds, and watch the progress of these trees from the earliest stage. It has occurred to me that if some enterprising seedsman were to make a large purchase of these seeds, and advertise a few varieties for distribution among amateurs like myself at about 5s. the selection, he might realise a remunerative profit, and confer a favour on many. I receive many catalogues of seeds, but this tribe seems to be specially excluded; perhaps from the notion that if we want these we may procure them from a nursery when three or four years old; but this is not the point. I can say with truth that I look with far more interest on an *Araucaria* grown last year in a

pot from a seed than on every other plant about the garden of the same species procured from a nursery when three feet high.—HONOR.

BEET-ROOT.—"At page 206, under the head of 'Beet-root,' you say, 'Turner's Pine Apple Beet.' Permit the error to be altered into 'Henderson's Pine Apple Beet.'—F. BREWER."

MONOCHÆTUM ENSIFERUM (*M. G.*).—There was an answer to another correspondent relative to this plant in our last week's number. Your plant is in too low a temperature.

SIZE OF FLOWER-POTS (*Dandelion*).—The following are the sizes in inches of the London flower pots. Thimbles and thumbs; any size under three inches diameter at the top.

	Width of top in inches.	Depth in inches.	Old name.
Three-inch pot	3	4	60s
Five-inch	5	5	48s
Six-inch	6	6	32s
Eight-inch	8	8	24s
Nine-inch	9	9	16s
Eleven-inch	11	10	12s
Twelve-inch	12	11	8s
Thirteen-inch	13	12	6s
Fifteen-inch	15	13	4s
Eighteen-inch	18	14	2s

In addition to the above, there is a description of flower-pots called *uprights*, which are used for growing bulbous plants, the roots of which do not spread laterally, but perpendicularly. They are deeper in proportion to their width than common flower-pots, and may be thus particularised;—

	Top width in inches.	Depth in inches.	
Upright 15-inch (Old upright 16s)	15	16	Used for growing 7, or a large mass of Gladioli, and third-sized bulbs of Japan Lilies; for ordinary-sized <i>Alströmarias</i> ; and for large tubers of <i>Tropæolum tricolorum</i> and its allies.
Upright 8-inch (Old upright 24s)	8	10	For 5 Hyacinths, Narcissi, or strong early Tulips, like Golden Standard and <i>Rex rubrorum</i> .
Upright 6-inch (Old upright 32s)	6	7	For 3 Hyacinths, or Narcissi, and for 1 strong Gladiolus, Auricula, &c.
Upright 5-inch (Old upright 48s)	5	6	For single Hyacinths, or Narcissi; for 5 <i>Ixias</i> or Crocuses; and for 4 dwarf early Tulips, such as the Van Houtte.

For sizes larger than 15-inch it is needless to have any pots but those of the usual proportions. Thimbles are sometimes called "small nineties," and thumbs, "large nineties."

GALVANISED IRON WIRE (—).—For securing corks in bottles this may be obtained of Messrs. W. Fox & Co., 105, Holborn Hill, E.C. They will send you particulars if you write to them.

NECTARINES NEAR BIDEFORD (*H.*).—The cause of their shrivelling and falling off instead of ripening is a want of moisture at the roots. We find Nectarines do the same if not watered and mulched in summer. A sprinkling over head gently with the engine or syringe in the evenings, after sunny days, would also be an advantage. For the open air we should prefer, as White Grapes, *Royal Muscadine* and *Dutch Sweetwater*; and as Blacks, *Hamburgh* and *Esperione*. On such a north wall, fine Pears, as *Marie Louise*, *Louise Bonne of Jersey*, &c., will do well, and come in late; and so will the early Plums, as *Green Gage*. In fact, they will be a surer crop than on a south wall, though not quite so rich in saccharine matter.

STEPS TO A GARDEN TERRACE (*A Subscriber*).—Stone for such steps would, of course, be best, and they need not be white; and if they were they would soon lose their polish by exposure. Very nice steps might be made of bricks and cement, and a sloping wall go down each side in a line with the grass banks. At the top and bottom of these slopes a little square pier could be built, nine inches or fourteen inches wide, and six inches or nine inches above the lower and higher steps respectively, and on these four piers four little vases could be placed. If you do not like the looks of the bricks, whitewash the whole over with fresh lime, and in a week paint them all over, and when thoroughly dry paint again, and give what colour you like, by throwing on as much dry sand of a white or dark colour as the paint will absorb when wet. If these are not approved of, Oak or Deal planking may be used the same way; or if that should be too expensive, boards the necessary width, and from one inch and a half to two inches thick may be used, and these will last many years. These we would make in the same style, as the sloping pieces down the sides give the whole a nice finish. These may be rough painted and sanded, to resemble light or dark sandstone at once, and the vases might be pretty earthenware pots done in the same way. If the blind wall faces south-east or west, nothing could be more ornamental than Tea and China Roses relieved by *Ceanothus*, *Magnolias*, *Clematis*, &c. If to the north, various coloured Ivies would be best. The straight outline may easily be broken if desired. For such a position as the kitchen garden, we would make the boundary a waved or out-and-in line of Larch or other poles crossing each other diagonally, so as to present anything but a straight outline, and against and through these poles we would train Ivy planted in a good border. We would have the top of the fence nearly as much, or more, varied than the ground outline; at one place rising into points and pinacles, festooning then into curves, and then rising again into irregular arches. We have seen good boundaries in such places by placing rough wood, roots of trees, &c., into irregular mounds, with intervening spaces of less height, but they did not look well until they were covered. The

poles or sticks and the Ivy would be nice, and the effect would be heightened by placing a nice evergreen shrub in front at the bold points or curves.

HOUSES NOT HEATING (T. W. T.).—As the pipes get so hot it shows there is no fault in them, nor yet in the boiler. A dark colour in the pipes is best for radiating heat; but you do not say what the colour is: whatever it is the pipes must give out the heat that is in them ultimately. If the pipes are in a drain they will not heat the atmosphere so much, or, at least, so soon as when exposed. Our impression is that you have not enough pipe; but we can hardly judge, as you have not told us how far your pipes go. If you have only three pipes in the twenty-foot front of your house, that would do for commencing forcing in March; but not in November or December. To force such a house so early the pipes would require to go round the ends, or even all round the house. Besides, you say nothing of the height of the house, or the surface of glass exposed. Very likely Mr. Weeks, in heating, was never given to understand that you wanted a high temperature in winter. Such mistakes are made, and then the blame is thrown on the tradesmen, though they did all they agreed to do. Would it not be as well to tell Mr. Weeks of your difficulty? We have had very severe weather; but if your thermometer is all right, and the pipes are so hot, we think you want more piping.

RED SPIDER ON VERBENAS (H. T.).—The shoot of your Verbena was the very worst case we have ever seen of attacks of the red spider. Nothing else was the matter with it, and it is a thousand to one if you can get a single cutting now from your plants free from the pest. The only chance there is for you is to cut away all the old shoots down to two or three eyes next the pots, leaving not a single leaf; to put the plants in a damp, close frame, with a gentle, moist heat, and to make cuttings of the new growths; but your greenhouse will not be free from the red spider for months. A very cold frame is best for wintering Verbenas; they cannot bear a very dry exposure; but the red spider was on them last autumn when you made the cuttings. Dry sulphur is no remedy against the red spider when once it gets a-head. The fumes of it burning in very small doses choke the rascals, and they cannot bear up against a damp atmosphere; but clear water is, of all others, the best remedy for killing them, either by the hand-syringe, or by dipping the whole plant in a tub of it; but unless the water floods every wrinkle between the veins on the under side of the leaves they will soon be up as bad as ever.

MAUVE-COLOURED FLOWERS (Little Greenhouse).—Mr. Beaton says he never saw or heard of a Verbena, or any other flower that he could say was "a perfect mauve colour." Such readings are what set the world by the ears but too often. In the Primulads or Primrose tribes, the tribes of the Pinks, Dianthus, Dahlias, Scabiouses, and Verbenas, mauve-coloured flowers are not very likely to be produced.

STEPHANOTIS FLORIBUNDA & ALLAMANDA CATHARTICA CULTURE (H. R. R.).—In recent volumes the treatment of these plants has been fully given. If the plants are in large pots and wholly or partially plunged in a bark-bed, they could have no better position; and full exposure to light when growing and ripening the wood is of more importance than mere soil or time of potting. The soil we prefer is fibry peat and loam with little bits of charcoal to keep it open whilst the plants are young, and chiefly fibry loam when the plants are of a large size and require a large pot. When grown in a No. 4, 2, or 1 pot, we prefer frequent fresh surfacings to fresh potting, resorting to the latter chiefly when the soil is exhausted, or the drainage has become clogged. We give great importance to full exposure to sun in the autumn months, and having no more shoots or leaves than can be thus exposed, and keeping the plants dry and cool in the dark winter months. The Stephanotis in a temperature of from 50° to 55°, and the Allamanda in a temperature of from 55° to 60°, with a rise from sunshine. Provided the shoots have been well ripened, they will bloom equally well on the long shoots, as upon spurs. To make sure, we would leave the Stephanotis without much stopping, and the Allamanda we would merely shorten back a third or a fourth. As the days lengthen and fresh growth is taking place is the best time to shift or top dress; and if the shoots were well ripened the previous year, the bloom-trusses will soon make their appearance when the fresh growth has taken place after a time of comparative rest in winter. If the plants were kept somewhat shaded in autumn, and growing in a high, moist temperature all the winter, there is less chance of the plants blooming profusely in spring and summer.

CENTRE OVAL BED (A Subscriber).—The proper furniture for your front oval of twelve feet by six feet, and very exposed, is a "ground work" of the common evergreen Berberis (*B. aquifolia*), to imitate a bed of Rhododendrons in looks; and here and there a plant of *Pernettya mucronata*, or better, if the oval is on gravel, the bed of Berberis, and the edging of *Pernettya*, instead of turf. Both make excellent substitutes for turf; both may be cut, in May, almost as close as Box. The two may thus be kept to any height, under ten feet, you choose. The Barberry will attain that height in time, if it be allowed; but it may be kept under or about three feet high for a whole lifetime without hindering its blooming freely. The bed of other evergreens was for a lawn. The *Skimmia Japonica* is as hardy as *Rhododendron ponticum*, and *Erica herbacea* is considerably more hardy than the common dwarf Heaths of Scotland. The nurseryman who told you these were greenhouse plants cannot have understood you.

VARIOUS (A Subscriber).—*Lobelia speciosa* is the best dark blue, and comes true from seed, and blooms early. *Lobelia erinoides alba* and *compactum album*, but neither very good. The habit of *Verbena venosa* is upright, comes true from seeds, and blooms late the same year. *Verbena melindres* is a very dwarf creeping sort, and varies very considerably from seeds. Mrs. Holford Verbena comes the nearest to what you want, and the very best for your purpose. There is no white Calceolaiia useful in beds or bedding. A very good-grown *Humea elegans* would be the best for the centre of a circular bed of *Tom Thumb* Geranium. There is no rule against such an arrangement; but if the bed forms one of a group tastes may differ.

LEAVES FOR FORCING SEA-KALE (An Amateur).—The leaves require no preparing. Of course these must be collected into some corner or other where the wind will not blow them about. With us they are brought into one corner of the frame-ground from the lawns and other places, and remain there for use whenever wanted. In covering up the Kale, which is done when the weather is favourable, the hottest and driest leaves are applied first. They are quickly and carefully placed in, amongst, and round the pots to the thickness of a foot and a half wider, and as much

higher than the pots, and the dampest leaves put on the top; all being well packed together in a workmanlike manner, and just a thin covering of any long litter put over the whole to prevent the wind blowing them about, and helping to keep the leaves warm. In about five or six weeks Kale may be expected to be ready for cutting under some of the pots.

REMOVING STANDARD ROSES (H. H.).—As they must be removed this spring, move them before April is ended, and prune them in very close at the time.

NAMES OF PLANTS (J. A. G.).—Such diminutive bits are very puzzling. 2. *Agathosma ovatifolium*. 3. One of the Acacias, probably *Acacia longifolia*. 1 and 4 not detectable from such specimens. (*A Constant Reader*).—Yours is *Mentha rotundifolia*, variety *variegata* of the gardens, and much used as a bedding plant. (*A Subscriber, Halifax*).—The smaller Fern, No. 1, *Asplenium Trichomanes*, the common spleenwort. The larger Fern is *Pteris serrulata*, a stove or warm greenhouse kind.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

FEBRUARY 29th, and MARCH 1st, 1860. ULVERSTONE. Sec., Mr. T. Robson. Entries close February 11th.

MARCH 15th, 16th, and 17th. CUMBERLAND AND WESTMORELAND. Hon. Secs., Mr. J. J. Lonsdale, and Mr. W. D. Hastwell.

MAY 23d and 24th. BEVERLEY AND EAST RIDING OF YORKSHIRE. Sec., Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

JULY 18th and 19th. MERTHYR TYDVIL. Sec., Mr. W. H. Harris, 142, High Street, Merthyr.

N.B.—Secretaries will oblige us by sending early copies of their lists.

KEEPING POULTRY PROFITABLY.

THE paper to which we alluded lately is only one of many; and as there is an evident inclination to treat the poultry question on a large scale and to take interest in it, we purpose, during the season of leisure and relief from Poultry Shows, to devote some papers to the subject.

While answering questions we are, of course, more or less tied to certain points on which information is sought; but we purpose now to go freely and unrestrainedly into the question—to jot down anything we believe to be useful or interesting—and to write a chatty, familiar, after-dinner-sort-of-conversational article.

We some time since saw a "sweet thing" in the way of books. It was published by an Oxford man at Oxford, and was termed "A Synopsis of Plucking." It showed how that undesirable event might be brought about in divers ways—by hunting in the morning and wine-parties in the evening; by continuous lounging in pastrycooks' shops for the sake and purpose of conversation with the young ladies who officiate therein; by great devotion to rowing and the river; by hanging about livery-stables, making a book, and talking learnedly about odds; and by wagering on the possibility of colouring a given number of pipes before going up.

Just as these victims to the foregoing pursuits all intended to pass, so every one keeping poultry intends it to pay. All want not the same. Some look for filthy ducats; some hanker after fame; some yearn for excitement; some like the fun of the thing; some mean to sell eggs; some to send barndoor poultry to the neighbouring market; while others have visions of those quoted in our columns at 6s. 6d. each in the spring of the year.

A man wrote a shilling pamphlet entitled, "What to Eat, What to Drink, and What to Avoid, in order to attain to Four-score Years and Ten." We believe he died at thirty; but, no doubt, that was because he neglected his own writings. Like our hairdresser, who has invented the "Gropilosonbalspot" cream, which prevents the hair from falling off and forbids it to turn grey; yet he has been bald ever since we knew him, almost from his youth; and the little hair that garnishes the sides of his head is like that which remained on the "pow" of "John Anderson my jo" when the song was written. He has not used his own cream, it is evident.

We often wonder at the *exigence* of ladies and the patience of tradesmen if, for our sins, we are condemned to go out shopping, and to see the piles of goods that are examined on the strength of a promise to call again. The truth is, ladies will not be denied; and they put questions so closely, that experience has taught us to be prepared with answers. Anticipating this from the fact that many of our readers (may they be increased) are of the gentler sex, we answer beforehand: "Yes, we have tried all we herein recommend." "No, we have not succeeded in everything." "Why?" "Because we were like the author and hairdresser of whom we have spoken."

(To be continued.)

CRYSTAL PALACE POULTRY SHOW.

THE Crystal Palace Poultry Show may now fairly consider itself established, not only as a treat to amateurs every six months, but as a well-managed, meritorious Exhibition, claiming support as its right—as its reward for good management, and for those efforts which, while they cater for the public amusement, are at the same time parts of the varied network of entertainment which forms the yearly list of attractions. The Directors of this beautiful place give proof of wisdom, by adopting every pursuit in its turn.* Each brings its train of admirers, and all become identified with a place where their hobby is cultivated. It is thus a meeting like that of which we now write may be far more profitable than it appears, by the connection it forms with all classes, and many large parties are made up, and take place months after the Meeting at which they originated is forgotten. We would not have it thought we consider these as unprofitable speculations. We are happy to say we know the reverse; but we are bound, when treating of these things, to take the question in all its bearings.

If the popularity of a Show may be tested by the number of the entries, then Mr. Houghton, as the sole manager, may look with pride and satisfaction at the Exhibition just now terminated. One thousand pens of poultry, and three hundred of Pigeons. Add to this, that all the greatest and best exhibitors contributed to the list; and it will be believed, we have to comment on one of the greatest Shows of the season. It has one advantage that cannot be over-estimated—there is ample accommodation for any number of pens, and that without trenching on the comfort of the birds, or diminishing the space necessary to the well-being of visitors. There is one charm, or advantage, possessed by this Show in which it stands alone. We allude to the luxury of having the Palace to resort to, for rest or change, as frequently as may be desired.

The adult *Spanish* was a capital class, but some of the birds lacked condition, owing, as we were told, to the inclement weather they had encountered of late. There was one last vestige of trimming—we trust the dying speech and confession of that bad practice. We must state at the outset, we cannot name all the meritorious pens. The prize list published by us last week will have given all information, and we must refer our readers to it; any mention can be only for unusual merit. Mr. Garlick's birds were very good; but we doubt whether the second prize, Mrs. Hall's, would not have changed places with them, had they been in condition.

The *Chicken* class was a large one,—forty-two entries. Here Miss Rake and Mr. Teebay met to conclude the season. We cannot imagine anything better than the two pens with which Miss Rake took first and second, thus winding up a period of extraordinary success with the greatest triumph of all. Mr. Teebay was third. Fifteen of these pens deserved especial mention.

There was a good show of *Hens* and *Pullets*, and the two prize pens were unusually good. The cocks afforded another triumph to that remarkable bird of Mr. Teebay's. He may be proud of it; and if he keep in condition, it is not the last time he will be a prizetaker.

Large classes are the next in order,—*Dorkings*. Here, again, every known and popular exhibitor entered the list. It will, perhaps, be better to treat of all the *Dorking* classes at once. It saves prolixity, and will not tire our readers. It leads us from 126 to 290, and was made up of birds that would have done credit to any Show. Especial mention is deserved by Captain Hornby for his old birds and his two hens. Lady Louisa Thynne showed at one of the large Shows for the first time with great success, and (we use the term advisedly) triumphed in the chicken class with ease over all our best and oldest exhibitors. Let the three names that follow speak for themselves. The Rev. J. Boys, the Hon. W. Vernon, and Mr. C. H. Wakefield. This latter gentleman would have occupied a high position in the adult class, but for an accident to one of his hens. Messrs. Breavington, Fowler, Berwick, Lingwood, Boys, Baker, Botham, Beal, Cole, and others, obtained prizes and mention they richly deserved.

Mr. Frost was the victor in the *Single Cock* class, with a bird of great merit. Those belonging to Captain Hornby and Mr. Botham were very good.

Having thus noticed those that were most remarkable, we may speak of the classes generally. The increase in size that has been noticed at recent Shows was here fully maintained; and while we regret the prejudice or fashion that keeps away the rose-combed birds, we were glad to see that almost the only pen shown occupied a high position in the prize list. Fifty-two pens of

Dorkings claimed honourable mention at the hands of the Judges. Ninety-six pens of *Cochins* included all those exhibitors who have done so much to restore these birds to their old position and scale of merit. It must have been a novelty for Mr. Tomlinson's old birds to be defeated; but it was so, and the palm was awarded to Mr. Stretch; Mr. Tomlinson took his revenge in chickens. Mrs. Fookes was a close competitor. Liverpool monopolised the Grouse and Partridge *Cochins* prizes, Mr. Copple was distinguished in White. We can speak well of all the *Cochin* classes, and of the care with which the birds were chosen and exhibited.

The Crystal Palace is always noted for the excellence of its show of *Brahmas*; and thirty-one pens maintained the old reputation. A new name appeared—Mr. F. Andrews, of Farnham, who took the lead with an unusually good pen. With few exceptions all the birds shown were excellent specimens, and the prizes were scattered abroad.

Next came 184 pens of *Game*. Whether we view these birds for symmetry, purity, or condition, we speak of them in the highest terms of approbation; and even after such a remark as this we must single out a few pens that deserve something more. The remarkable pen of *Piles* belonging to the Rev. Mr. Cruwys; *Black-breasted Red* adults of the Hon. W. Vernon and Mr. Edgar Hanbury. The first and second-prize pens of Mr. Archer in class 25—these birds were so meritorious that they gained their honours although disfigured by fighting. Mr. Hellewell's *Blacks*, the Hon. W. Vernon's beautiful *Duckwings*, Mr. Porter's and the three first-prize *Single Cocks*, especially Mr. W. Cox's and Mr. Moss's. We do not for an instant mean to say we have mentioned all who deserve it. The forty highly commended pens were of very great merit.

The *Golden* and *Silver-pencilled Hamburgs* were very good, but the former excelled. Of late the exhibitors of the *Silver-pencilled* do not seem to have selected their birds as carefully as they might, or as they used to do. In these, as in all other breeds, it must be borne in mind that the avoidance of a defect is quite as important as the development of a beauty. The absence of the latter may not be fatal to success, while the existence of any capital defect must be.

The *Spangled* were good and very numerous in all their classes. We would especially mention those belonging to Messrs. Kershaw, W. Worrall, and Teebay; also the single cock belonging to Mr. Worrall, which we thought almost perfect. There were 73 pens of *Spangled Hamburgs*; and when we say 34 were named in the awards of the Judges, we shall speak more favourably of their excellence than by any lengthened report.

It is long since we saw such a class as that for *Black Polands* with white crests. Mrs. Robinson and Mr. Battye showed unusually good birds; the top-knots of the birds belonging to the first-prize pen being remarkable for their symmetry and closeness. Mrs. Pettat and Mr. G. S. Fox gained the honours of the *Golden*. There was much competition in the *Silvers*, which were excellent, and added to the laurels of two old exhibitors, Messrs. G. C. Adkins and G. S. Fox. Col. Clowes showed beautiful birds.

Malays were not so numerous as usual. We were surprised at it, because they are London fowls, and should be well represented so close to their home.

Seventy-seven pens of *Bantams* in the different classes made a good display of these favourites of the public. The *Gold-laced* were above the average, and the highly commended pens richly deserved prizes. The *Silvers* were excellent, especially Mr. T. H. D. Bayley's. The *White* were very good, but not so good as the *Black*. The small white deaf ears, bright red combs, and the long sickle feathers of the cock in the first-prize pen of the latter make it one of singular merit. Our favourites the *Game* mustered in strength. They furnished a triumph to the first exhibitor in this class, Mr. W. S. Forrest; but we do not think the *Duckwings* were as carefully matched and mated in colour as we have seen them. This remark may apply to many other pens and colours in this class.

Geese have ceased to be stupid, for John says he has tried to run over one, but finds it an impossibility; and if our wise king had lived now he would have found one of them was enough for two. Thus, Mr. Manfield's *White Geese* weighed 58 lbs.; Mr. Williams's, 48 lbs. In the *Greys* Mr. Fowler, as usual, was first, 70 lbs.; Mr. Edwards second, 66 lbs. These celebrated Grey Geese return to Prebendal Farm no more. They were claimed. They have laid golden eggs for Mr. Fowler this season.

All the *Duck* classes were good and numerous, Mr. Fowler took first and second for *Aylesburys* with pens weighing 22 lbs. and 24 lbs. Mr. Hanks third, 20 lbs.

In *Rouens*, Mr. Breavington maintained the position he has lately re-taken. He was first not only with perfect feather, but 20lbs. in weight. Messrs. Braikenridge and Fowler followed.

The class for *Black Ducks* was well supported, and brought honour to Messrs. Fox and Pryor. The same report may now be made of all Duck classes. There are no longer bad bills in *Aylesburys*, faulty feathers in *Rouens*, nor large size and pied plumage in *Buenos Ayreans*. It is a struggle for pre-eminence, and the victorious are the best among the good.

Class 58, brought beautiful *Mandarin* and *Summer Ducks*, &c.

The weight of the prize *Turkeys* will speak for their merits. The adults weighed 59 lbs., the young ones 59½ lbs.

Here is the end of our report. It is a favourable one, and we are glad of it. One thing alone was adverse, and that was the weather. We are bound to tender our thanks to Mr. Houghton, who was, as usual, courteous and ubiquitous; and we also congratulate him on the continued success of his endeavours to make this Show one of the largest and most popular in the kingdom.

It was attended by more of the nobility and gentry than we have ever seen at any meeting. The sales were very numerous, and Mr. Teebay refused £20 for his young Spanish cock.

Messrs. Hewitt and Baily were the Judges.

EGGS IN WINTER—REARING DUCKLINGS—WARM NESTS.

My experience of late bears out in a measure what you have been recommending to those who want fresh eggs in winter; three pullets and a hen having laid me during the last three months exactly eighty eggs, though I have not given them ale and hot-buttered toast.

If "W. R. E.," *Plymouth*, wishes to make the most use of his hens, I would recommend him to rear his Ducklings without allowing them the hen. I found last summer that it can be done with complete success with the additional trouble only of putting them into a hamper at night for the first week or two.

I also have had hens hatch before their full time was up, which I have attributed to my lining the nests well with feathers. It is worth the experiment.—G. M.

AN ATTACK OF THE BLUES.

YOUR correspondent is at present suffering a severe attack of the blues, or blue devils, as they are generally called (at least by me for the last fortnight), and am anxious that you should prescribe me a cure. Come now, don't shrug your editorial shoulders so, muttering, "Poor fellow!—new year potatoes—not in our way." I think decidedly in your way, and expect that from the recesses of your learned caputs I shall get relief.

You must know, then, that my tormentors are not aerial phantoms of the brain, but real flesh-and-blood little villains—feathered, too—commonly known in this quarter as Bluebonnets. I am sure I heartily wish all such "Bluebonnets were over the border" in double quick time; but am doubtful if our southern friends would relish—the bee-keeping portion at all events—a flight of titmice, with half the pleasure they received that prince of the race, Samuel Warren's immortal Tittlebat.

But to the point. Observing little mincings of straw on the landing-boards, I concluded that mice had got into some of my hives; and was about to satisfy myself on this head as I had done previously, by inverting the hive, throwing a piece of thin white gauze or net over it, giving a few taps all round, when Mr. Mouse would at once show himself by springing to the light to effect his escape. Seeing no other indications of mice I delayed disturbing the bees, keeping a sharp look out meantime. I soon discovered the real depredator. Down he came—alighting on the top of the waterproof cover of the straw thatch—chirping away with restless glee—a squint right and left—coast clear—down on top hoop—another glance all round—down second hoop—another squint—on to alighting-board—in he goes—tap, tap—no answer—another double knock—out comes a sleepy sentinel to meet his fate—another double knock. I could stand this no longer—off to the house, vowing his life was not worth five minutes' purchase—back gun in hand. My returning footsteps scared the rascal, which takes refuge in a trice within the well-trained branches of a young pyramid; hopping up and down it with a quick, complacent, chirping chuckle, which sounded very much like "Shoot me here if you dare." The nearest stone dislodged him, when over the garden-wall he goes, and is lost in the wood. To the wood I follow, blazing away at every blue scoundrel

to be seen, till I reached a belt, and found the young Spruce and Larch fairly infested with them. The more I shot the more they chirped, till, after having killed more than a dozen without any apparent diminution, I bethought me I should not get at the real culprit very readily after this fashion, as the most of these might never have crossed the garden-wall, so I gave it up.

Since, they have gone on from bad to worse. Two of my straw hives are in a fair way of having a second entrance immediately over the first, as that band is more than half through, and a wooden hive all round the entrance is pecked into as many small holes as the comb within. A bit of zinc will mend that matter more easily than restore at this season my lessening bees. I have thought of sticking up a couple of dead birds before each hive, or netting over the entrance, and on the net fastening a number of hair snares, their fluttering struggles might bring out the bees. Birdlime would trap more bees than birds on a mild day, I am afraid. You may suggest something better still: by so doing you will oblige—A RENFREWSHIRE BEE-KEEPER.

[Your locality is unfortunately infested with those little arch enemies of bees, the blue tomtit, titmouse, or blue devils, as you term these cunning marauders. In speaking of this bird, Purchas, an old bee authority, says, "She will eat ten or twelve bees at a time, and by-and-by be ready for more. When she cometh to the hive and findeth none, she knocketh with her bill at the door; and as soon as the bees come out to inquire the cause, she catcheth first one and then another until her belly be full." When disturbed at her work, the little rascal hops about, and tells you as plainly as chattering can do it that she shall not be long away. A solitary bird or two may be trapped or shot, but it is not so easy to see a remedy where these plunderers are numerous. We should be inclined to advise that bee-houses be entirely boarded in at the front, setting the hives a good way back, with but a small opening for outward exits, and little or no alighting-board. If this plan be pursued, care must be taken that sufficient ventilation reaches the hive by removing the front board occasionally, or opening the back doors; otherwise dysentery might ensue. We have seen the good effects of a winter screen placed a little in advance of the hive, as represented in Mr. Taylor's "Bee-keeper's Manual," which entirely hides from view both hive and bees; the latter, moreover, not being attracted to the entrance by a glare of light injurious at this season.]

OUR LETTER BOX.

LARGE PRODUCE OF EGGS.—In my letter published in your last number I omitted mentioning that my fowls pay the whole of their expenses in feeding, &c., and at the end of the last year there was a balance on the right side. The eggs and chickens that are not wanted for the house are sold to pay for this amusement. I seldom have a sick bird.—W. F. HOPKINS.

POULTRY IN A CONFINED SPACE (*H. Nixon*).—It is not only possible to keep Cochins in an outhouse six feet square, but they have been so kept as stated in the "Poultry Book for the Many," and this is not at all inconsistent with what we stated in answer to a correspondent—"We never advise fowls to be kept in so confined a space." It may be done, but it is cruel to the fowls, and profitless to the owner. By extreme attention to cleanliness and diet the birds may be kept free from disease; but they are never in that vigorous health which characterises those birds which have an extensive run, and an unlimited supply of green and insect food. Your space is treble the size above mentioned, yet it is not such a run as can justify the expectation of profit. Unless you have a separate place where a hen could be put with her brood, we would advise you to aim at producing eggs only. Have three Spanish pullets, and three Cochins in pullets, but no cock.

WORK ON POULTRY (*Trafalgar Goods Station*).—That with coloured plates is "The Poultry Book," by Messrs. Johnson and Winkfield. A copy, second-hand, may be purchased for about 12s. No second edition has been published. There is no reliable work upon Canaries, nor any at all upon the Game fowl only.

CONSUMPTION IN FOWLS (*A. E. W.*).—There is no cure for this disease when so far advanced that its nature is unmistakable. When in its very earliest stage, half a grain of sulphate of copper, in powder, given daily, in powder mixed with a little soft food, might be administered advantageously.

KEEPING RABBITS PROFITABLY.—"I shall be obliged by your opinion and advice as to whether I could keep Rabbits to pay a liberal return for the time bestowed on them and the food they consumed by breeding for the poulterer. Also would you advise keeping in hutches in a greenhouse, which I thought of turning into a rabbit-house? or would you advise turning them loose in a piece of ground 150 feet long by 50 feet walled in? What sort would be the best—the common half-lop, the double-lop, or Chinchilla Silver Grey? It will be a better guide if I tell you I am a small market-gardener, and wish to increase my income. I have been thinking of the above some time, and I am now ready to commence. I have heard that several authors have guaranteed large incomes by keeping Rabbits, but I never could get one of their pamphlets. There is one which I should like, if you could tell me where I could get it—that by M. Despony, "Le Lapin Domestique." Paris, 1838.—G. W."

[We shall be much obliged by any of our readers stating their experience in attempting to keep Rabbits profitably.]

WEEKLY CALENDAR.

Day of M'nth Week.	Day of Week.	FEB. 28—MARCH 5, 1860.	WEATHER NEAR LONDON IN 1859.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
28	Tu	Populus alba.	30.272—30.180	52—39	S.W.	—	51 af 6	35 af 5	22 0	7	12 53	59
29	W	EMBER WEEK.	.....	.....	.....	...	49 6	37 5	38 a 1	3	12 42	60
1	Th	Populus tremula.	30.265—30.225	54—27	W.	—	47 6	38 5	49 2	9	12 30	61
2	F	Populus nigra.	30.209—30.074	55—41	S.W.	—	45 6	40 5	48 3	10	12 17	62
3	S	Daphne laureola.	30.188—30.126	59—48	W.	—	42 6	42 5	33 4	11	12 4	63
4	SUN	2 SUNDAY IN LENT.	30.226—30.201	62—49	S.W.	—	40 6	44 5	7 5	12	11 51	64
5	M	Adoxa moschatellina.	30.296—30.234	62—40	W.	—	38 6	45 5	33 5	13	11 37	65

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 48.4° and 33.2° respectively. The greatest heat, 64°, occurred on the 28th, in 1846; and the lowest cold, 13°, on the 5th, in 1855. During the period 127 days were fine, and on 71 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

FREQUENT attention is now necessary in the giving and taking away of air as the alternations of bright sunshine and clouds occur, and also to temper cold winds by the admission of air on the south side. After the severe weather we have lately experienced, and the extra fire heat used in consequence, many plants that may appear all right may, nevertheless, be very dry, and if they are not examined, and when very dry, well soaked with water, they will soon show unmistakeable signs of approaching death.

AZALEAS (Indian).—Young plants that have commenced their growth to be repotted. Shift Achimenes, Begonias, Gesneras, &c., and keep them in a warm, moist situation.

BULBS.—Pot Cape and other bulbs in a compost of loam, leaf mould, with a good sprinkling of sand, as soon as they begin to make growth in foliage.

HEATHS.—Continue to shift as they may require, using sandy heath-soil full of fibres, with an abundance of drainage. Be sure that the ball is thoroughly moist before shifting; for if perfectly dry when that operation is performed the waterings afterwards given will pass freely through the fresh soil without penetrating the old ball. Give them all the air possible, avoiding north or north-east winds.

POTTING must be in progress, and include a good proportion of the occupants of these houses.

STOVE AND ORCHID-HOUSE.

Push Allamandas, Clerodendrons, Stephanotises, &c., forward as briskly as possible; but be in no hurry to train them, as freedom in growth is advantageous to a certain extent. Use all means to check the increase of insects.

ORCHIDS.—The general collection to be favoured with a good steaming every clear morning for about half an hour: this to be done by sprinkling the flues or pipes when warm. Plants in a growing state to be slightly shaded, to prevent flagging from too copious a perspiration during a sudden mid-day bright sunshine. Orchids are generally increased by passing a sharp knife between the pseudo-bulbs (taking care to leave at least two or three undisturbed next the growing shoots) so as to sever one or more of the dormant bulbs from the parent plant, which should remain until it shows signs of growth, when it may be taken off and potted.

FORCING-HOUSES.

CHERRIES.—The syringe to be used freely except when in bloom, plenty of air to be given, and the green fly kept down; shutting up with a little extra solar heat in the afternoons of bright days.

FIGS.—Abundance of syringing and good waterings with liquid manure may now be given them. Sudden changes in their treatment will cause the fruit to drop, all the shoots when six or eight inches long to be stopped to encourage the formation of a second crop.

MELONS.—Use strongish maiden loam by itself to grow

them. See to the linings, attend well to setting, and maintain an airy and dry atmosphere when in blossom. Keep the shoots at all times thin.

PEACHES.—Frequent attention to be given in arranging the young shoots, disbudding and thinning. A knowledge of the state of the border is necessary, whether retentive or porous, that no serious errors may be made by withholding a sufficient supply of water, or by giving too much. The temperature of the early house to be from 55° to 60° by night, ranging from 75° to 80° by sun heat, and allowing 65° by artificial heat, on dull days.

PINES.—A day temperature of 75° to 80° to be maintained during the progress of the fruit to maturity, accompanied by atmospheric moisture. Succession plants to be supplied with a steady moist heat, and to be carefully sustained after potting, to induce a healthy action of the roots. Shading is sometimes necessary during bright sunshine.

VINES.—As the lower parts of the stems are generally close to the heating apparatus, it is advisable to bind them up with moss or haybands, neatly clipped, as far as the parching heat extends. The moss or haybands being damped morning and evening with the syringe, will keep the bark and stems in a healthy state, and will frequently induce a mass of roots to be produced there. That by watering occasionally with liquid manure will contribute to sustain the vigour of the trees. WILLIAM KEANE.

WALTONIAN CASE AND PROPAGATION.

"Can you inform me if there is any other maker of the Waltonian Case besides Mr. West, of Surbiton? I ordered a Case of him rather more than *three months* ago, and though I have several times written to him during that period, urging its being sent, and he has promised I should have it a month since, up to this time I have never been able to obtain the Case. I imagine Mr. West has more orders for Cases than he can fulfil, and, therefore, it would be a great convenience to the public could they be obtained from other makers besides him." — AN AMATEUR SUBSCRIBER.

WHEN I showed this complaint to Mr. West, he said, "I am sorry to tell you, he is only one out of twenty-two who tease my life out and out just now to have their Waltonian Cases sent to them at once, and you yourself must know there are more than double that number of Cases quite ready for despatch, as far as I am concerned. And I wish to goodness you gentlemen writers would make up your minds about the best mode of heating them, as, since Mr. Hibberd first broached in print the superiority of the candles over lamps, no one will buy a lamp; and yet up to this moment not a single candle has been hit upon to do the work of the lamps." "Mr. Fiddlesticks," said I, "why, man alive, you are the person to blame for that very idea. Did you not tell me that you tried it on with Palmer's people five years back? Did you not say that unless you were to undertake to buy so many gross, they would not risk the trouble of making moulds for experiments? And, did I not tell you at the beginning that Mr. Walton, the inventor of the Case,

with all his wealth, his influence, and his knowledge of London, failed in procuring anything so effectual, and at the same time so cheap as the lamps, for the space of full two years before *you* manufacturers, and *we* 'gentlemen writers,' ever thought of dipping our fingers in oil or grease, or stearine compounds? And if you had taken my advice last May (see COTTAGE GARDENER, Vol. XXII., page 93), and 'allowed the candle to rest under the bushel' till certain ladies, therein named, had certified, or reported on the merits of such candles, you would have saved all this bother, and be pounds in pocket."

Mr. West freely owned that he was considerably the loser by the change in the mode of heating; and I knew months back that the candles which were sold in printed-labelled parcels, "as recommended by Mr. Shirley Hibberd," had failed. I knew, also, that Mr. Wilson, the manager of "Price's Patent Candle Company," came down to Surbiton to see the candles tested, or to learn, rather, how the tests had succeeded; and, as luck would have it, Mr. Wilson found Mrs. West in her conservatory, hoping against hope, and humouring the candles more than ever she did any of her own children; but all would not do, and Mr. Wilson saw with his own eyes, and believed what he did see, that the candle—out of seven kinds of candles which were made after the suggestion of Mr. Hibberd—had completely failed. "I consider the essentials," says Mr. H., "to be a candle eight inches long, to burn twelve hours, and to heat the Case to at least 80°." Again, "Messrs. Price & Co. have very kindly complied with every wish I have expressed, and made no less than eight different kinds of candles, all of them suitable except one." There must be, therefore, some peculiarity about the No. 7. Perhaps spells against witchcraft have no effect on things seven in number, because so many things are mentioned in the Scriptures by sevens. The whole seven candles were bewitched as surely as anything else was ever bewitched, for none of them would do.

I promised (COTTAGE GARDENER, Vol. XXII., p. 93), that if the candles suited, Mr. Hibberd should receive the credit entirely to himself, although he was only third violin in the concert. Mr. Walton played first fiddle, Mr. West the big bass, and Mr. Hibberd, with Price & Co. following, with fiddlesticks; as it would appear in reality to have been the very order, or being myself out of order, begging their pardon, or programme of "that ther" concert. But that the candles failed I said nothing about.

Mr. Wilson and Mr. West left the good lady in blacks; and the blacks left her, also, short of sundry aprons and morning gowns. After putting their heads together, and after seeing that candles would not do the thing, "Now how they could fix them." Mr. West suggested his original motion of a "light" instead—a magnified Price's Patent Night Light. "You accomplish the 'light,' and I shall alter the lamp-stage to suit the new kind of burner." "Done," said Mr. Wilson; and to work he went on moulds and night lights in earnest; and by about Christmas he succeeded in making just the very thing, and called the thing by a new name—"Shearwood," to heat Waltonian Cases in Mr. West's name this time. In trade a name is everything, and the name under which these candles failed would not be safe under these circumstances; but now, in the very dead of winter, who could test the Shearwood lights?—no one, of course. That is the whole and sole truth for the delay in delivering the Cases and the loss of trade to Mr. West, through "we" gentleman writers, and through no fault or failing on his part; he often expressed to me his anxiety to have the proofs of the candles and of the lights as speedily as possible. He went into a considerable outlay in enlarging his factory, and in taking in more hands to get up a good stock of ready-made Cases by the beginning of this propagating season. Indeed, I took one of the Editors of THE COTTAGE GARDENER over the new works when they

were in progress, the master and mistress being out at the time; but, having their permission as a standing order, I often take friends over the works. Yet I have more cause for regret than you may think owing to this delay in the proof of the Shearwoods; for I had some experiments of my own which I wanted to test before Christmas, and ordered Mr. West to get me a set of four-inch pipes and other pipes, stops, and syphons, which he did long before Christmas; and there they are now standing in his manufactory-yards, and, like the shoe-maker's wife, here I am without a shoe to my foot for experiments this spring. Every spare moment from other departments must be spent on these Waltonians, till all the orders are off at the least.

Well, then, at the beginning of this February, Mr. Hibberd wrote to Dr. Lindley that he had "just received from Mr. West a Case made on the new pattern;" by which we learn that he too was still trying "experiments with candles during several weeks, and the loss of the season in regard to the publication of the result was unavoidable." But the loss of credit for the failure of seven kinds of candles which he approved of, and must have been up to the mark of his approbation "in the essentials," is passed over in silence: and not only that, but his love of inventor's fame pushed him into a wrong position; for he tells the Doctor as plain as Punch that the "new pattern was made to carry out his plan of heating" with candles eight inches long, of course—every word of which is as far from the truth as I am from the north pole. All his "plan of heating" was done in spring-box candlesticks, with candles eight inches long—the very essence of his own fancy. After that he gave the Doctor such a thorough-going eulogy on the facts, feats, and capabilities of the Waltonian, that Mr. West resolved to send out sixteen Cases that week, ten the next, and the rest in the order in which they stood on the books. But it appears that Mr. Hibberd wrote to the Doctor from his fancies, and from a fear that he should not be up at the death, rather than from any practical knowledge gained from the "new pattern" itself.

Just then, as if on purpose to dispel the best ideas, a correspondent of THE COTTAGE GARDENER writes complaining of the delay in the delivery of the Waltonian Cases, and the mode of heating them by candles, and was told the candles had failed—that is, the seven kinds which Mr. Hibberd said last May were "up to all the essentials he insisted on." Here the difficulty took a fresh turn; and as Mr. West was on the point of sending off all the Cases which were then on his order-book, I called at his shop, and was shown the new "Shearwood" lights which were to heat them, and I left word with the foreman to tell Mr. West these Shearwoods could not be of sufficient power to heat the Cases so early in the season; and Mr. West stopped the packers, having luckily sent off but one Case with a box of Shearwoods. On the 17th of February Mr. West received the following letters—one from Mr. Hibberd and one from Mr. Wilson:—

"Price's Patent Candle Company, Limited.

"Belmont, Vauxhall, London, S., 17th Feb., 1860.

"DEAR SIR,—The present night lights, if two be used at once, keep up, I believe, the heat you require for twelve hours or more. What I wished to consult you upon was whether nine hours' watches would not do, as I thought the light for that time could be made more certainly regular, and one would keep sufficient heat for ordinary use.

"I would not keep back orders, but only suggest two of the present size being used at once. I understood THE COTTAGE GARDENER'S condemnation to apply to candles, not to the new lights.

"We shall try to make one which will give larger light for twelve hours: in that case, probably, putting only nine in a box.

"Yours truly,

"GEO. WILSON."

"Stoke Newington, N., Feb. 17, 1860.

"DEAR SIR,—Do not send out any more of these horrid Shearwoods; they are no use at all. Mr. Wilson will make them

with more substance. The candles I had last winter did the thing grandly, and so will Palmer's twelve-hour night lights; and the only thing against using them is, that they burn in lamps a foot high. The Cases could be made to stand high enough for that.

"If you have any stock of Shearwoods by you I will take them all, to use for night lights sooner than the public shall have them. In taking orders be sure to send the lamp, and say nothing about candles until the manufacturers can accomplish a fulfilment of the conditions I have so fully and frequently explained.

"Yours truly,
"SHIRLEY HIBBERD."

Here, then, after a delay of ten months, we arrive at the very point at which Mr. Walton presented the Case to Mr. West, and all through the best intentions. No wonder a certain place is paved with the very best of them, and a greater wonder it will be if we ever get rid of them. But why should editors and the conductors of public journals give place to such stuff? I have been asked over and over again. The only answer is that editors do not sit in judgment over their correspondents. If a peasant gives his name to an editor he has as much right to be heard as a peer; a dairymaid as much as a duchess; a fool as a philosopher; but an anonymous writer is at the mercy of the editor, and has no right to a reply if his letter is inserted. So the Doctor is perfectly free from blame for this disappointment; but his correspondent is not equally free from censure for not writing to the Doctor to tell him of the failure of his practice as widely as he spread the fancies of his sanguine anticipation, instead of writing privately to Mr. West, who had enough of the game to bear already, and who had to bear the loss and blame caused to his trade by the best intentions. But I can sympathise with Mr. Hibberd under the circumstances. I, too, deceived the public with the same ardour in the matter of the Boursault stock for Roses. When I discovered my mistake I was in an awful mood for weeks; my appetite failed me, and I went moping about, till I made up my mind to change my name, and go to New Zealand, sooner than tell publicly what a fool I was; and there was no other person in the plot on whom I could fix the failure. It was then I dreamed a dream, and saw the public in seeming good humour, notwithstanding that they were cognisant of all my fault, and I made up my mind on the pillow to confess the whole truth, and be as good-humoured as they seemed to be. So I did in these very pages; and, ever since, they, the public, put more faith in what I write than they ever did before. That page in the life of an old gardener should ever be present to the minds of the young in our line. Let no temptation under heaven ever sway the weakest minded of them from the path of truth and straightforward manly character, and their reward will follow them; for, no matter what scrape they may fall into, people will never think the worse of them for it.

And now we must think about oil lamps for the Waltonians, until an improved Shearwood comes out to replace them. The Cases as they are now made are fitted for lamps; and, for Shearwoods, all that is necessary is to make the wick about double the size of the present one, or about six times larger than those in the common night lights. Then, of course, they must need greater thickness, so to burn for ten hours, or even nine, if that is nearer the mark in price. Then, should the price be a little more than that by the lamp, the simplicity of the mode will make it to be universally adopted among the class for whom it is the very best system of propagation.

In the accounts of it under the Doctor, there is not a word too much in its praise; but there is a sad libel on it in his last tickler. I mean where it is said to be a propagating-case and no more, and that no plants can be grown in it after they are rooted, which is just as wide of the mark as the poles are asunder. As far as its

capacity goes, it is just as good a Wardian Case as any that has been hitherto thought of for the whole summer; and, no doubt, a minimum light will be wanted to keep it up to 50° all the winter. It need not be idle a single day the year round, take my word for it. I studied the whole plan with Mr. Walton himself two years before it went westways, and I have never lost sight of it since. I have seen it crammed with plants the summer through by Mr. West; but, of course, not using heat in summer, and I kept it full of plants for Mr. West. The first spring he had it in his front shop, where all the passers by could see it. The expense is simply the only thing against it as a Wardian Case; but when you once have it, and make up your mind to give it a do up once a-year, after the propagation, to suit a recess near a window, and to agree with good furniture, take my word for it, no Wardian Case will beat it the whole summer.

To answer the suggestion of "AN AMATEUR SUBSCRIBER" at the beginning of this article, about obtaining it from other makers. Besides the fact of being registered, there is not one in the trade in a thousand who might hit on the exact requirements in making it, being far more ingeniously contrived inside than any one who has yet used it is at all aware of, and this part of every one of them has been made by the same man from the first day till now. Another man in Surbiton took to the making of it long ago, but he could never hit it off, and he gave it up in despair. From the want of a practical recommendation, it is now safe and certain, that no one will buy any of them which does not pass the ordeal of criticism from THE COTTAGE GARDENER. But anybody who shall recommend it to anybody else, will be doing that body a real service, and a thousand of them can be got ready in a season; but no one should put off the ordering of it to the time for propagation. Every order from the middle of January to the end of May, must wait the turn of first come first go, and first-rate success to it to the bargain.

The last improvement in the working of it, is to make it temporary, in two divisions, by a centre piece of glass to drop down from the roof, and to be of the same slope; then by tilting the glass frame which forms half of the roof you have air and more coolness for seeds, the other end being closed for more heat for cuttings; but the safeguard for it is a cold box with loose panes of glass for a top, and to remove seedling-pots from the seed department of the Case as soon as they require it, and that is just where thousands fail in gardening, and blame the seeds and seedsmen for bad seeds, when the whole and sole blame rests with their own want of knowing the exact way of doing them. A thousand chances against the best-saved seed in the shop in the hands of ten thousand who find pleasure in doing the best they can think of.

Sometimes I am apt to think there are more seeds sent to me than I ordered, for I seldom have a miss in seeds; and if I could confine myself to a good-going Waltonian Case, I am satisfied that there is not a packet of seeds in a respectable shop in London, but I could get up just as well as if I had the run of a large establishment. I never heard a syllable against seeds at the Experimental Garden yet. It is in the kinds that ever I was taken-in with seeds. If I want a particular kind of Scabious or Dianthus, or of any of the many kindred sorts, the chances are against me, for the names do not always tell the right tints; but the seeds seldom fail with me in vegetating. Lettuces, Cabbages, Broccoli, and Peas, often play me the same tricks; but that comes of the carelessness of the seed growers. The only practical rule for removing these seedlings of bedding plants from heat, is to watch that the heat is not too much for them, drawing them up with weak, long stems; and after they are turned to a cool place, to have them kept as close, from air, as they were in the Case or hotbed for a whole week, or even longer, thus early to

enable them to gain firmness and strength sufficient to hold up against light and air.

For cuttings in a Waltonian Case, the sand at the bottom should never become dry; but for seed-pots it is more safe to have the sand not quite so wet. After the cuttings are done with, the Case is the best place I know to manage seed-pots in with very little bottom heat in May, and none after that period.

The 1st of May is quite early enough to sow *Humea* seeds for next year, as, by having them earlier, amateurs are apt to have them with bare stems next the ground. All the seeds of spring flowers, such as those of the Primrose and Auricula kinds, the Mimuluses, and all such as come up best, and do better to be sown the moment they are ripe, in a cold, close Waltonian. In July, no place is better for *Cineraria* seeds; in August, for *Calceolaria*; in September, for the whole race of *Gladioluses*, and all without bottom heat; but in such hot weather to have a good thick layer of damp sand under the pots. In July, if a little soil or leaf mould is added to the sand, to the depth of one inch or a little more, Rose cuttings, and choice *Pelargoniums*, and fancy kinds from cuttings, will root better, without pots, in a Waltonian Case, than by any other plan I ever saw adopted, the whole bottom of the Case being, as it were, one great pot, without the risk and inconvenience of large balls under unrooted stuff. All that I have seen done, and done well, in these Cases, and without bottom heat; so that between one thing and another, as I have just said, these Cases may be kept at full work nine months in the year, and a change every month or six weeks; but in the dead of winter, unless one is up to the mark, there is certainly some risk, if bottom heat is to be kept on all the while; but, in-doors and near a window, all the very small hardy Ferns may be kept in them the whole winter, and look just as gay as the *Anectochilus* do in similar minimum conservatories in the hottest stoves.

D. BEATON.

CONSERVATORY CLIMBERS PLANTED IN RAISED BORDERS.

IN reading over your account of *Lapageria rosea* culture, in the last October number of *THE COTTAGE GARDENER*, you say, "What an odd idea that climbers cannot be planted out in conservatories that have no borders, but are paved all over! Why, that is just the best kind of house in which to plant out all climbers and trainers." Please to tell me how you would plant them out. I have a large and lofty conservatory, have tried climbers in many ways, boxes, pots, and put out in the outside border and brought in, but in no way have I succeeded in obtaining any amount of flowers or foliage up the rafters. Neither boxes nor pots appear to give sufficient root room.—MANCHESTER.

[One of the best-furnished conservatories with climbers which we have seen was just such another house as yours at the time Her Majesty succeeded to the British crown. The foundation was on a deep bed of the London clay, and there were no means for draining borders much lower than the paths in the house. All ideas of borders were, therefore, given up when the house was erected, and the whole of the inside was paved with slate an inch thick, having four gratings near the four corners to take off the water from pots, boxes, and when the floor was cleaned. The drains were only three inches below the slate for want of a fall. The very same contrivances for growing climbers which you have tried were resorted to, and with precisely the same results. The old mismanagers at the Chiswick garden got into the same fix some years later with the present large conservatory. No side-borders there, and no climber worthy of the name from that day to this, or until Mr. McEwen turned it into a vinery.

One of our contributors succeeded to the management of the slate-floored conservatory, and in two years had it furnished with the best climbers of that day. In that house the magnificent *Beaumontia grandiflora* flowered for the first time in the neighbourhood of London, and there also it flowered for the last time in these parts. The back wall was ten feet high in brickwork, then a wide span-roof; every brick of the face of that back wall

was covered in one week with the choicest *Camellias*, large plants from nine to twelve feet high, cut close on one side, the shoots of the other side being trained to the wall, the plants costing from five to ten guineas each; and they suffered no check or harm from the cutting, or the change from large pots to open borders. A large folding-door opened from the drawing-room into this conservatory, and on one side of the door the whole end was covered by a *Plumbago Capensis* trained like a Peach tree. The other side of the door was covered with an *Oleander* trained the same way.

Now, all these did well for many years, and all of them were in borders made on the top of the slate-flooring all round the house; therefore, we were justified in saying that a paved conservatory was, of all other modes, the best for the finest climbers, and so it most certainly is; and very many expensive houses of this kind cannot boast of climbers, just because the borders are below the level of the paths, and for no other reason whatever. The borders in the conservatory above mentioned were twenty inches deep, and thirty inches wide throughout, crooked or drained at the bottom, and between the bottom of the soil and the top of the pavement, just like draining a large pot or box with bits of broken bricks and bones broken to the size of Windsor Beans; then a very thin turf from a sandy common over that, much like the way Vine-borders are made. Long slabs of half-inch slate were fixed to hold up the front of that border, the side-walls keeping up the back of the border. The lower edges of the slabs were toothed an inch deep, and three or four inches apart, to let off the drainage—that is, an inch and a half wide, and one inch deep, were sawed out of the bottom of the slabs at short intervals; they were fastened to the pavement by small bolts to slide up and down, and at the top with pieces of flat iron half an inch wide, and a quarter of an inch thick, one end sharpened to drive into the wall, the other end hooked to "clip" the top edge of the slate, which top was one inch above the top of the soil of the border. These borders were from forty to fifty feet long at the back and front, and no plant-borders were ever yet made which paid better. As the house was more than the usual width, side-stages for pot plants were made to hide every inch of the borders; two runs of stage against the face of the slate sides, and one run on the top over the border. When all the pots and plants were on no one could tell whether the borders were above or below the path; and, lastly, any length of slab could be removed to examine the border.]

HOTBEDS FOR SEEDLINGS.

"It has been requested by the writers for *THE COTTAGE GARDENER*, that if any previous information on any subject were not sufficiently explanatory, to refer them to the year, volume, and page, in which that information was given. The year is 1856, Vol. XVI., page 95, in which a letter was answered respecting the making of hotbeds. 'If our correspondent had told us what material she used, &c.' Stable manure is the material, but she had tried, and it has never succeeded to give satisfaction. The heat is sometimes ranging at 90° or 100°, and down again at 50°, and then the heat does not last long."

"'M. L. E.' has sent for a Waltonian Case, but when the seedlings come up she will require a hotbed to place them in, also for forwarding other things in the spring. Would it be better to promote regular heat, to dig out the earth one or two feet, and then put in the manure? It would be a great satisfaction to make a hotbed to answer. Would *THE COTTAGE GARDENER* take the trouble to give a little more assistance to lady amateurs upon this subject, naming the best time to commence one, when to have it ready for use, &c.? She has found sawdust an excellent thing to plunge her *Verbenas* and *Roses* up to the pot-rims in a frame without manure under, for winter preservation; and she has tried sawdust on the top of the manure instead of bark, to plunge the pots in for seeds and cuttings, but that has not answered, and she read in *THE COTTAGE GARDENER* that sawdust was a non-conductor of heat. In one respect it did answer, not having insects to contend with, as in bark. Would sand be better than bark, and be equally hot, and better than sawdust?"

I HAVE glanced at Vol. XVI., page 95, referred to rightly by "M. L. E.," and though I should be glad to oblige her, I almost fear that an attempt to give more assistance, or, in other words, make the matter more plain, will be little better than a break down. However, I will try, merely [premising that from

the nature of the case, there must be considerable variation in the heat from hotbeds, according to the changes of the weather and the care with which covering and air giving, &c., are attended to. A high and equal temperature may be secured only when means are taken to prevent the heat being dissipated in cold, windy weather. I have looked at a bed at times, which for six weeks past has varied little from 67° in the morning, in all the changeable weather; but that bed is at least three feet wider than the frame, and though the most of the bed is of leaves, and above the ground, the sides are protected by hurdles, through which the prunings of Laurels were thickly drawn. Fermenting tree-leaves are of great use in lessening labour and material in making hotbeds. Of themselves they never or rarely give out an unhealthy heat; and, therefore, when making a bed in a hurry I am not at all anxious to have the dung extra sweet or extra worked, if I can place upon the top of the whole a foot of sweet heating tree-leaves. Any unhealthy steam or vapour that would come from the imperfectly-sweetened dung would be arrested and absorbed by the leaves before getting into the atmosphere of the frame. For general modes of preparation I would, therefore, refer to the article specified above, and others scattered somewhat liberally on this subject.

For the sake of others, however, as well as our correspondent, who have only stable manure to go to in making their hotbed, I would wish them to keep in view the following facts or principles:—

First. Other things being the same, the more droppings and urine there are in that stable manure, the hotter it will become when thrown into a heap to ferment.

Second. Moisture and air are necessary to a continued fermentation.

Third. Fermentation is just a kind of combustion or burning. In either case the heat produced is at the expense of the material that gives the heat. Wood or coal leaves the residuum of ashes, and dung ultimately becomes a fat unctuous earth, the remains in either case failing to yield more heat.

Fourth. In making hotbeds from dung, two objects are sought to be gained—heat lasting and somewhat under our command, and heat that in its quality would not be injurious to vegetation. Fresh stable-dung would, by its fumes, destroy any vegetable confined in its vicinity, and hence the necessity of turning the heap and moistening it when too dry, in order to get the dung sweet; best known from the drops of water condensed above it being of a clear bright, and not of a yellowish colour. If this process be carried too far, the heap when made into a bed will heat violently at first, and there will be little chance of renewing it, because the fibre which furnished the heat from its decomposition will be all spent, or will be so close, that the air and its oxygen can gain no access to it; and the material, so far as yielding heat, would be like fuel lying in a furnace once burning but now gone out, because all draught and access of air were arrested.

If the manure is thrown together, therefore, in very cold weather, the heating will be arrested; if it is very wet it will require to part with a portion of its moisture to heat kindly; and, if very dry, the process will be as effectually arrested, as you would fail to heat by hot water and the pipes empty. The great thing, then, is to procure the dung for a bed sweet enough and moist enough to keep on decomposing, and not so moist as to keep out air, or so decomposed that if the air could get at it there was nothing for its oxygen to consume and thus raise heat.

For all general purposes of seeds and young plants I consider the first and second weeks in March quite time enough to have a bed ready for use. Keeping in view that the material is limited, and can only be procured after several weeks' saving it, I would proceed in the following manner, preparing for a one-light, a two-light, or a three-light box, according to the quantity, and circumstances, I shall suppose that there is a nice little heap of this material. Well, the first thing to do is to go over it all, and fork aside a few barrow-loads of the freshest and longest; then shake the rest all nicely, long and short, into a neat heap, and if rather dry water the dry places as you go along; and if wet enough already refrain from adding more water. When this is done, cover neatly all over with the long, fresh litter. If the weather is mild, in eight or ten days this heap will want turning over again. Remove the litter, and lay it aside, and then shake the top of the heap to the bottom, and the sides to the centre, and if any part has heated itself dry give that part a little more water, if there are not already some other parts rather wet, which would

thus neutralise it. Cover with the litter all round the same as before. In about eight days, or less, according to the weather, repeat the process; and in general, in a week more, or even less, this heap will be in first-rate condition for making a bed, and where there was abundance, I would make all the bed of such well-prepared material.

But I am supposing that there is no great amount of material, and that it is desirable to make the most of it. Well, I shall suppose two circumstances.

First. That beds had been made last spring or summer; and that when these were wheeled out for manure, there were pieces every now and then not so decomposed as the rest, in a somewhat cakey, dry condition, capable of yielding even a little heat when thrown together, and especially for retaining heat when imparted. Well, if I could get enough of such material to cover my beds from six to nine inches, I would not decompose my heap so much before making it into a bed.

Secondly. Whilst the heap is thrown together, there will be fresh additions coming from the stable. These must be thrown into a heap of themselves, and covered with litter the same way, and by the time the first heap is sweet and well worked, this second heap will be enough fermented to go as a bottom to the bed above the litter used as covering. For such beds, at such a time, from twenty-four to thirty inches high at back, and from eighteen to twenty-four in front, will be ample if the bed extends a foot or fifteen inches all round the frame. Such beds will continue to give out a regular heat for a long time, though changes of weather will have to be guarded against by extra care in protection.

In such a bed before thoroughly decomposed, additional heat can always be obtained by allowing air and moisture to have access to the freshest parts, either by means of pipes, or making holes, and pouring in a little water when necessary, stopping the holes when fermentation is going on afresh.

For such beds, I quite approve of our correspondent's idea of having the manure sunk mostly below the ground level, provided the bed is as much wider than the frame as stated above, otherwise the earth would absorb a considerable portion of the heat. That proviso attended to, the bed will be defended from cold winds and unnecessary exposure to air, and the operator can get at it more easily, as the bottom of the frame will be pretty well at the ground level of the place. In severe weather, or, indeed, at all times, a layer of straw fastened nicely with string and tacks against the sides and ends of the frame would, alike, prevent the heat from escaping, and secure neatness and ease of access to the inside. I agree in this sinking plan the more, because I consider anything in the way of putting linings for heat round such temporary beds to be labour and material thrown away, as one barrow-load of hot fermenting dung inside will do more good than half a dozen placed round the outsides. Allowing that the heat wanted in general from such a bed may average for bottom heat from 75° to 90°, and for top heat from 55° to 65°, without sun, and the heat gets lower than we like, then I would take out the pots in one-light, in a mild day, protecting them in the meantime, and preventing the air acting on the plants left in the other lights, take out the plunging material if any, and a few inches—say, six of the sweetest dung on the surface, and turn up the dung below, shaking it nicely; and if that is in good order, the air that has had access and will have occupied every cranny, will cause a fresh fermentation, and there will be heat enough for that light, and a stimulus given also to the neighbouring one. If on turning you are a little dubious as to the heat, add a barrow-load or two of fresh dung that has been in a heap for some time though not very sweet; but in that case, take a little more of the old dung out and place the new nearest the bottom. Just be careful that enough of the old and the sweet goes on the top again to keep down all rank steams, if there should be any. With beds not above twenty inches to twenty-four inches deep of material, because it was scarce, I have kept up a good genial heat for pots by the above method, seldom doing a whole frame at a time; but if it were a three-light box, doing one of the side-lights at a time, the other side-light a week or ten days afterwards, and the middle one last, which exerted an influence on both side-ones sufficient for the season. When everything is ready, a light can thus be renewed almost as quickly as I have described the manner; and when such attention is made more of a pleasure than a tiresome bore, it is amazing what can be done with even a small amount of fermenting matter. By always securing sweet, rather decomposed material on the surface, the under part need not be so much

fermented. It is impossible to get a large heap all sweet throughout without very greatly reducing its bulk. Economy says, Use even the heat before it gets so very sweet, which otherwise would be lost, only prevent it injuring anything by covering it securely.

All seedlings that are the better from a little heat will like the seed-pots to be plunged in such a sweet bed, if those more hardy than tropical plants are seldom above 80° bottom heat. When fairly up, the pots containing such seedlings should be at least half raised out of the plunging medium. The same must be done with potted seedlings as soon as they begin to grow. Too much heat will cause them to come weak. Such a bed will not often be too hot until the hot days of summer. Provided heat is obtained, the plunging material is of little consequence. It is by no means a matter of so much consequence as our correspondent supposes: it is, however, worth alluding to. In a bed covered with some of the best undecomposed part of last year's bed, I would not be against plunging in such a material. If there were danger of worms, a little salt or quick lime mixed with the upper layer would generally keep them down, and keep slugs at a distance too. For neatness, I should cover the surface with ashes from the furnace; their roughness is also an annoyance to the slimy tribe. There might even be a layer of four or six inches of these ashes all over. Sand for plunging in would be very clean, and chiefly on that account would be better than earth; but for such a place I would give the preference to ashes. "M. L. E." is quite right as to sawdust being a non-conductor of heat when it is dry, and moist air cannot get at it; but when it becomes dampish, and a good heap of it is thrown together, it heats strongly as it decomposes. A foot or eighteen inches of it in a bed will give a nice mild heat of itself, if not allowed to get too moist, for then sometimes the heat will be rather violent. I lately saw it recommended for packing Carrots, &c., in, but I should not like it for that purpose, because if resinous, a flavour would be imparted, and if the heap or clamp were large, however dry the sawdust, when used at first, they would be apt to absorb as much moisture as to heat rather violently. At least twice in my experience have I known Carrots thoroughly destroyed—a mass of rottenness from being packed in sawdust. This, however, by the way. For winter work and spring work, as to plunging plants, such objections do not apply. Mr. Lane and others use it for plunging their large show plants of Roses, or used to do so. The gentle heat thus emitted was sufficient for the purpose. I have, however, two objections against its free use as a plunging medium, if the bottoms of the pots stand upon it, and these pots are to be frequently watered.

The first is, that the sawdust will get so firmly encrusted in and round the hole in the bottom of the pot as to interfere with drainage. When the bottom of the pot, therefore, rests on the sawdust, a cavity should be left in the centre opposite the drainage-hole. The second objection is, that with us, probably from the sawdust being a mixture of many kinds of wood, it produces great quantities of *Conferve*-like fungals that spread with great rapidity, and which are as unsightly to the eye as they are offensive to the organs of smell. Quick lime soon settles them; but if once they get on a plant its health is gone beyond recall. Even when I mixed sawdust with ashes, or did so long ago with tan, I used to be equally annoyed. I therefore use it sparingly, unless for charring.

On the whole, where it can be procured I should prefer tan, though I have not used it for many years. When obtained nice and new, and not over wet, and thrown in a heap, and covered with a little litter to cause it to heat nicely, it was soon fit for use, either for a surfacing for a hotbed or making a bed by itself. In my younger days I used to mix the new and the old together; but I gave up that for several reasons, the chief being the keeping a regular heat, and I found that was best done by keeping the new tan either at the bottom or the top of the bed. When once well sweated in a heap almost everything likes it afterwards; and I was never annoyed with the insects of which our correspondent complains.

R. FISH.

MANURES FOR WINDOW GARDENING.*

WE consider carbonate of potass or carbonate of soda preferable for softening water to caustic lime; because this would not soften the water, and the very causticity might injure very tender seedlings or young plants. The hardness of water is

generally owing to the presence of the sulphate of magnesia, the sulphate of lime, or the carbonate of lime; and the addition of either of the salts mentioned above in small quantity will decompose the sulphates. Even then the water should be exposed a day before using it. After all, full exposure to the sun and its beams is the best means for making water healthy to plants. Even rain water, when collected in tanks underneath the ground, and excluded from light and air, will sometimes get very hard from absorbing sulphates, &c., from the material with which the tanks are lined. Such hard cold water is more pleasant to drink; but we question, if indulged in at all carelessly, if it is not as prejudicial to the animal as to the vegetable system.

Neither superphosphate of lime nor soot are such powerful manures as Peruvian guano; but both are much more powerful than sheep's dung, and of the two superphosphate is rather the stronger. However, we value them all; and on the principle that no animal likes continually the same food we would use all these in rotation, taking care to err on the safe side as to quantity. Many of us never see anything but horse and cowdung. All these may also be used for top dressing with propriety, except, perhaps, guano, unless that is used in the smallest quantity. We have strewed as much superphosphate as could be raised between the thumb and two fingers over the surface of a six-inch pot previously to watering it, and with advantage; but half the quantity of guano caused almost every leaf to fall in less than twenty-four hours, and ruined the plants. Giving these as waterings, we prefer the water being rather clear before using; and to be safe we would not exceed two ounces of guano for four gallons, three ounces of superphosphate, and much the same amount of fresh soot. If damp or mixed, use more in proportion. For all sorts of dung it is best to use the droppings rather recent, and allow them to ferment in a tub for a month, and then throw in a handful of lime to help to clear the liquor; and weaken it as you use it, if too strong. If the droppings are old, the liquid may be used apparently much stronger. For all top dressings we prefer manure that has become somewhat old. We have seen Cucumbers flourishing for the twelvemonth and more that were dressed frequently on the surface with old Mushroom dung and a little drift sand, the dung at first being chiefly horse-droppings. We have seen a whole house of young bearing Cucumber plants next to destroyed by covering the surface with droppings nearly fresh: the roots could not stand so much ammonia going to them at once in such a rank state.

We have no faith in mixing superphosphate with tender seeds when sown, or that it would have any influence in preventing damping. We would sooner use a good proportion of drift sand and broken charcoal. With these exceptions, we like composts for seedlings in pots to be as simple as possible. The great remedy against damping, is plenty of air and sunshine when the plants are big enough to stand both. The next preventive is, pricking them singly or in patches as soon as they can be handled. When fairly growing, a little sprinkling on the surface or used as waterings will give them strength, but the quantity must depend on the nature of the plant and its condition. Young tender things will not feed so grossly as old established plants.

Neither zinc pots nor earthenware pots painted outside will be at all injurious to plants growing in them, provided drainage is properly attended to, and the compost is of a somewhat open character, except, perhaps, for an inch deep on the surface, which may well be finer and closer, to prevent the air entering in and through it too easily. When potters put a single crock over the hole in the bottom of the pot, and then fill in with fine riddled soil in which the smallest lump would have been an intruder, it is not to be wondered at that they stood aghast at the sight of a hard-burned pot, and looked upon zinc vases, or pots painted on the outside, as the utmost height of infatuation.

We do consider the little bits of charcoal very beneficial,—first, for keeping the soil open by means of a light next to unchanging substance; and next, as forming a sort of reservoir for retaining and absorbing ammonia, &c. As the plants get larger and need larger pots, increase the size of the pieces of charcoal from Peas to Beans, and even to larger shifts to Walnuts. Nothing answers better for drainage, it is so light. Every bit of refuse of a woody nature about a garden ought to be charred, if not used for lighting fires, or regulating the porosity of hotbeds, &c. When such bits are used for potting, the dust will be useful for mixing with sand, for compost for seedlings and cuttings. As a preventive against mould and damping, it will throw all the kinds of phosphates into the shade.

* This is in answer to C. L., West Brompton.

SOME OLD-FASHIONED FLOWERS.—No. 6.

THE SNOWDROP.

THE Crocus occupies a prominent place in our gardens, and of late several new varieties have been added to our collections; while its companion the Snowdrop is not cultivated to that extent it deserves, and cannot boast of more varieties than it could fifty years ago. No doubt its easy culture and commonness make it but little regarded by many; but due reflection would teach us better, for whoever considers the Snowdrop properly must view it in a very desirable light; for it cannot be denied, that, although small, it is elegant, compact, and full of bloom at the season of the year when scarcely any other flowers are to be met with, and to behold how it rears its head among the snow (which is falling fast while I am penning this paragraph, January 30th), challenging, as it were, to show colours with it in the perfection of whiteness. In fact, it is truly a very delicate-looking flower, and the effect is more wonderful by its bold and unshaken appearance at so rigorous a season.

All three varieties are beautiful, and each have their merits. The single is the first to show blossom, and often appears in January (many thousands are now in full blossom at Osberton); then follow the semi-double; and lastly, the double, which will not be out of flower before March. Thus the varieties often enliven us from eight to ten weeks.

They are well adapted and very suitable to grow in wilderness quarters and uncultivated places, and here they appear to the greatest perfection bursting through the turf in large bunches, where they show themselves as Nature designed them; also in the borders of our gardens and shrubberies, the borders of our woods, and in fact in uncultivated borders of all sorts.

At Osberton we have a border, planted ribbon-fashion, composed of a row of Aconites, Squills, Snowdrops, and Crocuses, which looks delightful at this season of the year.

The Snowdrop is propagated by parting the roots, which should be done as soon as the leaves are decayed; and, if required, they may be kept out of the ground until September by placing them in dry sand. Unless for any particular purpose, it is advisable not to disturb the roots oftener than once in four or five years, that they may form themselves into large clusters; for then they appear in their best form. The same treatment applies to the Squill, Aconite, and Crocus—all of which are very extensively cultivated here, being special favourites of the Viscountess Milton.—EDWARD BENNETT, *Osberton*.

FRUIT-ROOMS.

It is certainly very agreeable to be able to preserve our best varieties of Apples and Pears until a late period of the season; and for this purpose it is most essential that the room in which they are to be kept should be specially adapted to the purpose. But in how many cases do we find the economy of the fruit-room little studied; and at the same time we see fine fruits spoiled for want of a little attention.

Every person, then, who would have fine winter Pears should thus treat them:—He should have a large room built with hollow walls; and the roof should have a foot in thickness of sawdust or some other similar non-conducting material within it, for the purpose of preserving uniformity of temperature. There should also be several small openings for ventilation during the sweating of the fruit; and there should be the means of admitting light by windows, each of which should be furnished with a good shutter, to be kept closed excepting during the examinations of the fruit. The exclusion of light from fruit which it is intended to keep is very important, as its agency affects the rinds of fruit similarly to the surfaces of leaves, causing perspiration which terminates in shrivelling. The lower the temperature of the room the better, so that it does not freeze: we would name 40° as a fair average for a fruit-retarding room.

Coupled with this room there should be another one with a hot-water pipe in it, and where, when it is necessary, a temperature of 55° to 60° can be had. To this room may be removed such fruits as require to be accelerated, and upon which the additional temperature will soon show its effects by hastening their maturation, while the first room we noticed will keep others retarded; and between the two, with a little management, the season of each Pear will be much extended.

Pears are very variable as to their time of ripening on some soils. I have for years always had the *Easter Beurré*, so generally a late Pear, ripen its fruit in the month of November; but

at that time I only had a small room in a southern exposure to keep them in. The fruit grew upon a light gravelly loam, which gave it precocity; and the warm room completed the process by ripening it in November. Now, the same Pears keep very well till March in a room with a north front and ventilated, and approaching the temperature which I have stated as desirable.

We often see a fruit-room made of any temporary shed, in any situation; and it is quite true that a large majority of our best-kept Apples are furnished after having been preserved in old farm-buildings, such as barns and stables and other outhouses. These buildings have frequently thick stone walls, and are covered as frequently by thick roofs of thatch, thus preserving an unvarying low temperature, and not being liable to sudden variations of it. From such places I have seen late fruit brought out in a very extraordinary state of preservation, and without a wrinkle—a fact only to be accounted for by the very equable state of temperature, the darkness when covered with straw, and the want of perspiration.

Should I be asked where I could point to an illustration of the principles I recommend, I would at once refer to the garden of Lord Eversley near Reading, who is more familiarly known, perhaps, as the late Speaker of the House of Commons. He has built a detached and most complete fruit-room, with hollow walls and the other appliances which I have in this paper recommended. Mr. Spencer, also, has made a fine fruit-room at Bowood; but his is placed behind the hothouses—a situation which is advantageous in its position, but by which the temperature must be influenced, and of course it must be second to Lord Eversley's.

By the way, I am surprised that the hollow brick walls are not more in fashion than they are for dwelling-houses, seeing that they preserve a more equable temperature, and are not hot in summer nor cold in winter in any degree so excessively as are thin solid walls. The late Mr. Cubitt showed me some admirable hollow-walled cottages built from his designs on the estate of His Royal Highness Prince Albert at Osborne in the Isle of Wight. In building fruit-rooms their employment should be universal; for with less materials you get equal strength and equable temperature.

My object in writing these remarks is not so much to induce amateurs to build magnificent fruit-rooms as to induce them to reflect upon the conditions essential to the fruit's keeping; and bearing them in mind, to endeavour to apply those principles as far as lies in their power to such rude places as they may have. To the man of wealth I would say at once, Build a good isolated fruit-room: indeed, do all you do "well and thoroughly."

Much difference in the way of prolonging the season of fruits may be made by gathering and storing the various portions of crops in succession.

Drawers are very good places for keeping fruit in. They should fit closely, and the darkness which they insure is a principal condition of their successful use. Pears placed in them to keep may be previously wrapped in paper with advantage.

We have often heard of fruits being preserved in stone jars or in sand. This may do very well, being entirely dependent for its success to the principle of the exclusion of air and light after the sweating of the fruit, and to the preservation of a low, equable temperature at all times. Upon attention to these points the whole law of fruit-keeping depends. The writer has proved this for himself; and he would invite the amateur to give it his decided care and attention, in the firm hope that he may be rewarded with "good and perfect fruit."—HENRY BAILEY, *Nuneham*.

RECENT FROSTS AT BROMLEY.

SEEING some account in THE COTTAGE GARDENER of the effects of the late frost in different places, I feel tempted to inform your readers how we have fared in this neighbourhood, as I think such memoranda very useful. The frost set in here on the night of the 13th December, the thermometer sinking to 20°. The two following nights it fell to 16°, and on the night of the 16th it fell as low as 8°, which was the severest frost we have had this season. On the night of the 18th it was down to 12°, and after that it was not below 18°, the frost breaking on the 22nd.

The vegetable crops have suffered most severely, especially Broccolis, which in many places are entirely destroyed. It is so with us. Cabbages are also very much injured; the *Chou de Milan* and *Couve Tronchuda* are the least injured.

The shrubs are very little injured. *Cryptomeria Japonica* has

suffered more than any; a *Taxodium sempervirens*, 6 feet high, which was planted in October in an exposed situation, is slightly browned at the tips; a *Picea Nordmanniana*, planted about the same time, is not touched; a young *Wellingtonia gigantea*, twenty inches high, has also escaped uninjured; a patch of *Spergula pilifera*, planted in October, looks rather seedy, but will, I think, recover in the spring.

All our bedding Geraniums, Calceolarias, &c., were in a brick pit four inches thick, with a lining of farmyard-dung and a covering of double mats, over which some long stable-dung was shaken; and though they were not uncovered for more than a week they were quite uninjured, as were some Cinerarias in the same pit.—SOUTHBOROUGH, Bromley, Kent.

NEW OR RARE PLANTS.

STATICE BRASSICÆFOLIA (*Cabbage-leaved Statice*).

Found by M. Bourgeau on the Island of Gomora, one of the Canaries. In a cool greenhouse it bloomed at Kew in August. Flowers pale purple.—(*Botanical Magazine*, t. 5162.)

FOURCROYA FLAVO-VIRIDIS (*Yellow-green Fourcroya*).

A native of Real del Monte.—(*Ibid.*, t. 5163.)

SPIRÆA FORTUNEI (*Fortune's Spiræa*).

Also called *S. callosa*. Native of North China and Japan. A handsome hardy shrub, from three to five feet high. Flowers pink.—(*Ibid.*, t. 5164.)

CEANOTHUS VELUTINUS (*Velvety Ceanothus*).

Discovered by the lamented Douglas in Oregon, but recently reared from seed by Messrs. Veitch & Sons, of the Exeter and Chelsea Nurseries. This very handsome evergreen ornamental shrub may be expected to be quite hardy, for it is found among the Rocky Mountains at a considerable elevation above the sea.—(*Ibid.*, t. 5165.)

HETEROCENTRUM MEXICANUM (*Mexican Heterocentrum*).

It is also called *Melastoma* and *Heteronoma subtriplinervum*. Native of the Xalape Mountains, at elevations of from 6000 to 8000 feet. "No doubt it will succeed well in a cool greenhouse." Sent to Kew by Messrs. Low & Son, of the Clapton Nursery. Its flowers, pinkish purple, continue during the autumn and early winter months.—(*Ibid.*, t. 5166.)

TORENIA HIRSUTA (*Hairy Torenia*).

This stove plant is a native of Hindostan, and "perhaps more beautiful than that favourite plant, *T. Asiatica*." Flowers reddish purple, the middle lobe of its lower lip white. Introduced by Messrs. Low & Son, of the Clapton Nursery.—(*Ibid.*, t. 5167.)

THE SCIENCE OF GARDENING.

(Continued from page 302.)

THE sap, after ascending the stem, and being distributed along the various branches, is poured by their vessels into their leaves and there undergoes that elaboration, the phenomena of which have been already described. The sap vessels are ramified from the wood of the branches along the upper side of the leafstalks, are minutely subdivided so as to form a web resembling lace work on their superior surfaces, and unite at the edge of the leaf with equally minute vessels, forming a similar web on their lower surfaces. These fall into larger vessels, which return the sap along the under side of the leafstalks, into vessels traversing the inner bark of the branches, stem, and roots, and the sap is found to be converted, during its elaboration in the leaves, into the peculiar juices of the plant. The limpid insipid sap has been converted into the austere Gallic acid and tannin of the Oak; the acrid perfumed oil of the Lemon; the insipid gum of the Cherry; the starchy matter of the Potato, and the pungent resin of the Pine tribe.

In its descent in trees and shrubs it deposits between the bark and the wood that juice, known as *cambium*, from part of which the year's increase or enlarged growth is obtained, and the remainder is deposited ready to be communicated to the sap during its course the following spring, as it may be required for the development of the next year's foliage, flowers, and fruit. This abundant deposition of cambium is what the gardener terms "ripening the wood." In the Potato, Dahlia, and other tuberous-

rooted plants, the deposition is in the tuber; it is in the bulbs of the Onion and Tulip, and in the fibrous roots of the Ranunculus and grasses.

A knowledge of these facts suggested to the gardener that if the return of the sap were checked by a ligature so tight as to compress the vessels of the bark, the fruit above the ligature would be rendered finer and more abundant. Practice has shown that this is the desired result; and it may be taken as a rule, that whatever mechanical means checks the downward flow of the sap, causes the enlargement of buds or the production of new. If it be practised upon the Artichoke, a ligature being twisted round the stem, about three inches below the head, its size will be very much increased. If a similar ligature be passed round the branch of a fruit tree just previously to the bursting of its buds in the spring, the fruit on that branch will set more abundantly and be of finer growth. When the fruit is beginning to ripen, the ligature should be removed, that the reflux of the sap to the inferior parts may be less impeded, and the growth of those parts be, consequently, less checked. The power to do this renders a ligature much superior to another mode of producing the same effect, first introduced in Germany—viz., by removing an entire zone of bark, about an inch wide round the branch to be rendered more fruitful, and taking care that the bark be completely removed down to the very wood. This was designated the *ring of Pomona*, but it certainly was not auspiciously received by that deity, for although it renders the part of the branch superior to the wound more fruitful for two or three seasons, yet it renders the branch unsightly, by the swelling which occurs around the upper lip of the wound, and is often followed by disease and unfruitfulness.

No such injury accrues when ringing is performed on the lateral shoots of the Vine, which laterals are removed at the autumn pruning.

There must be a ring of bark full an inch wide removed; the cuts being made boldly down to the very young wood, or alburnum, and every particle of bark, inner and outer, must be removed between the cuts.

This drawing represents, faithfully, the ringed part of a rod at the close of autumn, and shows how the removal of the band of bark checked the return of the sap, and how, in consequence, the rod above the removed band increased in size beyond that portion of the rod below the band.

The increase of size is not confined to the bark. We have a Vine-branch in our possession, the wood of which above the ring doubles in diameter the wood below the ring.

The effect upon the berries was, in every instance, to advance their early ripening a fortnight, and to about double the size and weight of the berries, when compared with those grown on unringed branches of the same Vine. Nor were the colour and bloom of the berries diminished; indeed, so excellent were they, that we have seen them exhibited deservedly by the side of Grapes grown under glass, and they were sold in November, at Winchester, for 2s. 6d. a-pound.

Ringling the branches of fruit trees, to render them fruitful, was practised in France, and recommended there in print, about one century and a half since. There are various letters upon the subject in the early volumes of the Horticultural Society's Transactions, and in one of them (*Vol. I.*, p. 107), published in 1808, Mr. Williams, of Pitmaston, gives full directions for ringling the Grape Vine. He tells the result in these words:—"I invariably found that the fruit not only ripened earlier, but that the berries were considerably larger than usual, and more highly flavoured."

The improvement in fruit obtained by ringing is not confined to the Grape Vine, nor merely to an increase of size. Josiah Twamley, Esq., of Warwick, exhibited to the London Horticultural Society, many years since (1818), Apples from trees in his garden, produced on branches ringed and unringed. In the *French Crab* the fruit by ringing was increased to more than double the size, and its colour was much brightened. In the *Minchall Crab* the size was not increased, but the appearance of the



Apple was so improved as to make it truly beautiful; its colours, both red and yellow, were very bright. In the *Court-pendu* the improvement was still more conspicuous, the colours being changed from green and dull red, to brilliant yellow and scarlet (*Hort. Soc. Trans.* iii. 367). The benefits conferred upon Pears by ringing are still more striking; but to all stone fruit and Figs it seems to be injurious; and this arises, probably, from the bleeding which occurs from the wound.

When, adopted, as above, for accelerating the maturity of the fruit, to increase its size, and to improve its flavour, the process is called *Maturation ringing*; but when adopted to induce the formation of flowers, it is termed *Production ringing*. This shows its effect in the year next after that in which it was performed; but Maturation ringing during the same season. Production ringing may be practised at any time while the trees are without their leaves, but maturation ringing should be deferred until the flowers are fully expanded, or, rather, until they are passing into fruit, or even until the fruit is set.—(*Ibid.* iv., 557.)

That production ringing is influential has often been proved. Mr. W. Baxter, when gardener to the late Countess de Vandes, had a *Waratah* Camellia which he had never been able to flower. He cut a ring round the stem, so close to the root that he could cover the wound with the earth in the pot. The ring closed at the end of the year; abundant flower-buds formed, which expanded into blossom perfectly in the following spring. The branch of an *Aubletia Tibourbon* similarly ringed, was the only one which produced blossoms; and a similar result occurred to a branch of *Pyrus spectabilis*.—(*Ibid.*, iv., 128.) So certain is this ringing to cause the production of blossom-buds, that it is often employed to hasten such a production in young fruit trees.

Mr. Knight thus explained the mode in which ringing operates. Whatever portion of the descending sap is not expended in the growth of the plant sinks into the alburnum and joins the ascending current, to which it communicates powers not possessed by the recently absorbed fluid. When the course of the descending current is intercepted, that necessarily stagnates and accumulates about the decorticated part, whence it passes into the alburnum, is carried upwards and expended in an increased production of blossom and fruit. Consistently with this theory, Mr. Knight found that part of the alburnum situated above the disbarked space exceeded in specific gravity very considerably that lying below the space.—(*Ibid.*, iv., 159.)—J.

(To be continued.)

MUSA CAVENDISHII CULTURE.

I SEE a correspondent wishes to know the treatment of *Musa Cavendishii*: so, if you think it worthy, the following outline of the culture I have given two plants may be acceptable.

I procured a sucker, or plant, on the 10th of August 1856, which was in a four-inch pot. I planted it in the corner of a bark-bed in a square made with old boards two feet and a half each way, and the same in depth. The soil I planted in was turfy loam, rather strong, and one-third two-year-old dried cowdung (all being very rough, some of the pieces as big as half bricks), and a little leaf soil and sand to plant in. I syringed the plant about a month after planting, and watered well at the roots until the latter part of October, and then gave no more until the March following; the temperature during that time ranging from 40° to 45°; and several nights in mild weather no fire was given. The thermometer fell to 32° two nights during winter. I raised the temperature to about 50° on the 1st of February, and gave the Musa the same treatment as the Vines, which was never above 65° by fire heat, and oftener 60° for a month during the time the Grapes were setting. The greatest part of the Vines was *Muscat of Alexandria*; and they set equal to their neighbours, *Hamburgs* and *Frontignans*. One bunch weighed three pounds and three-quarters, and forty bunches averaged above two pounds each, with not a misplaced berry in them, and all as large as pigeons' eggs.

Now, I believe most gardeners forget, or do not like, to give air freely until they get the berries partly through their first swelling. But I gave air both at the top and bottom freely until the Vines began to flower; then I kept them more close, and kept the water in the evaporating-pans, as I think a little air-moisture agrees with them as well when in bloom as at other times, but it is not right to syringe them at that time. The fruit was excellent in flavour as well as in size.

But I am wandering from the Musa; yet, I think by giving

the outline of the Vine's culture you will know the temperature the plant has grown in. I commenced watering it on the 1st of March, giving about twenty gallons at once every two weeks until the 1st of October, when the fruit had done swelling. I cut the first fruits in the second week in November, and then brought the trunk into a warm shed, and it ripened them well. They lasted about five weeks, being 207 excellent fruits, and about 100 never swelled.

The plant sent up five suckers in June, and I left the strongest to succeed it. When I cut the parent down I pointed the old soil out from the root, and top dressed in the spring following; and treated it the same as the parent; but it did not swell its fruit so well, and I think there were more of them. I think it was too gross to stand the low temperature, as it lost several lower leaves in winter. I cut the fruit on the 8th of September, 1858, having two crops in little more than two years; and then cast the old plant and nearly a dozen suckers along with it on the dunghill, as it requires plenty of head room, besides being liable to the red spider unless well looked after. It was eight feet high, and twenty inches round the stem.

I forgot to mention that the plants both soon showed flower after the first watering in spring; and had liquid manure in a clear state, guano, and cowdung alternately—rather strong, as they seemed to like it.—J. A. G.

SAMUEL CURTIS, F.L.S.

SINCE the publication of our last number, death has taken from us a zealous horticulturist, for many years proprietor of this Magazine—Mr. Samuel Curtis. About fourteen years since Mr. Curtis disposed of his interest in the current issue of the work, and having retired to the residence of his son-in-law, the beautiful cottage of La Chaire, at Rozel, Jersey, he continued to occupy himself at an advanced age in his favourite pursuits of planting and gardening.

The "Botanical Magazine" was commenced in 1787 by William Curtis, an excellent botanist as well as horticulturist, author of the "Flora Londinensis," and for some time Demonstrator of Plants and *Præfectus Horti* to the Apothecaries' Company. At his death in 1799, the Magazine was carried on for the benefit of his daughter by Dr. John Sims, one of his executors; and in 1801 the daughter was married to the subject of this memoir, a relative with similar tastes, who had established himself as a florist at Walworth. The Magazine continued to prosper under the editorship of Dr. John Sims; and Samuel Curtis, who had inherited the property by marriage, removed to Glazenwood, near Coggeshall in Essex, and settled there as an extensive cultivator in most branches of horticulture.

In 1826 Dr. Sims retired from the editorial responsibilities of the Magazine, and it has been conducted by the present editor ever since. In 1827 the daughter of Mr. William Curtis died, leaving a numerous family, and Mr. Samuel Curtis was henceforth assisted in the business management of the work by the grandchildren, his daughters, who were his constant helpmates, and remained with him with affectionate tenderness to the last. He died at La Chaire on the 6th of January, at the ripe age of eighty-one.

In testimony of the respect in which he was held in the island, we conclude our sketch with the following extract from the *Jersey Times*, to the correctness of which every one who had the pleasure of knowing him will be ready to respond:—

"Few men have won more esteem than the subject of this notice. His general disposition and his hospitality and kindness to all visitors, his unobtrusive but unbounded beneficence towards the poor, had endeared him to all who came within the circle of his acquaintance. For a long time past his health had gradually failed. One of his greatest trials was the loss of his eyesight, which deprived him of the pleasure of observing the growth and development of the plants and flowers to which he was so much attached. He was a very warm supporter of the Jersey Agricultural and Horticultural Society, of which he had been elected an honorary member. His services were particularly valuable as a judge at the Exhibitions, and his observations were always received with interest and attention. He is more widely known in connection with the arrangements and laying-out of the Victoria Park, which he was summoned from his favourite haunts in the beautiful valley of Rozel to undertake. But probably he will be best known and most widely remembered in connection with the publication of the 'Botanical Magazine,' in which he

was coadjutor with Sir William Hooker. We cannot forbear saying that in Mr. Curtis the island has lost a very worthy and universally-esteemed resident. La Chaire, with its valuable botanical specimens, is the property of his daughter, Mrs. Fothergill."—(*Botanical Magazine*.)

BEDDING OUT IN SMALL GARDENS.

(Continued from page 285.)

A MARGIN or band of this kind gives great relief to the bed;—in fact, it is the same to the bed as the ornamental bouquet paper is to the bouquet. Others might not agree with me; but I prefer every alternate Rose of the first circle of dwarfs to be *Géant des Batailles* where they are not particularly wanted for the sake of variety, for they would seem to steady the growth of that circle, which, when kept perfect, is one of the principal points, or a certain guide towards keeping the bed in perfect order. I should have mentioned the mode that I have practised to increase my small stock of Roses; but it has been so thoroughly and skilfully done so very lately by the seemingly ever-ready and able pen of Mr. Beaton, that he has not left the least chance for a young hand to have a finger in this pie at all. As I pass I must say a word or two on old standard Rose trees, or how they might be renovated.

There were when I came here a few single standards dotted here and there; but they scarcely seemed worthy of the name of Roses, so rarely did they bloom. But still I could not dispense with them, but set to, and have got new heads on them, or rather young heads on the old shoulders. I chose some of the kindest of the branches and some that started from the crown of the stock as near as possible. Into some I inserted buds as early last summer as it was practicable, and as close to the crown as I well could. Those that were done early are by far the best at present. Some of them bloomed this last autumn, and would have done so profusely if they had been allowed to do so; while the others that were budded much later are lying dormant—that is, in the bud, but all ready to burst forth now in spite of the severe frosts they have had to encounter. Where this mode of renovating old Rose trees is practical it certainly must be far better than discarding them altogether, and especially where it does not always suit the pocket to supply their places with new ones.

When these are dotted out singly near any of the walks they will have a nobler and much more ornamental appearance if they have a small bed at their base on a miniature scale; these beds to appear as a footstool to the Roses, and to be of different shapes, according to people's fancy or the variation of the walks. In some places small circles tell well; in others pincushion shapes. Then, where a walk takes a circuitous kind of route, it is there that a half-moon shape seems at home; but of whatever shape these are, they must be planted with great taste and care. It ought to be always in remembrance that these beds are to the garden what the corner dishes are to the dessert table, or the most ornamental plants to the conservatory. But this kind of work will not do for a moment in a place where you see in one of the most conspicuous places the premises can boast of a bed filled with Dahlias, varying in height from a little above two feet to six; and as a match-bed to this I have seen the German Stocks one season, and French and German Asters mixed together another, with the Geraniums, or the best of them in the mixed borders. I do not mean to say all small places are planted in this manner—far from it; but there are far too many now like it, or were this last summer. The beds would have looked much better if they had been all lawn than planted in this style. If Dahlias, Asters, Stocks, and many other kinds of common flowers are grown in small places, they ought not to be grouped in beds on the lawn, but neither entirely discarded. Mention of these, however, must come in their proper place.

But now to the beds as they should be planted, which, although it may appear a little more trouble at first, yet take the whole of the summer months together, "To be done well at first," as the old adage has it, "it is twice done;" and in nothing will this adage apply better than it will to bedding out. The *Perilla Nankinensis* and *Manby's Variegated Geranium* are a very good mixture for a small bed if kept well pegged down. I had it this last summer in a pair of the pincushion-shaped beds beneath the standard Rose trees, and shall plant them very similar this year; they must be neither crowded nor squeezed together, as it were, but twined and twisted through each other in that easy careless way which will remove

all stiffness to a distance. All the small beds must be planted so as to form a link in the chain with the larger ones, and to hold possession of the mind until the eye of the gazer is seemingly riveted to the larger ones. Here the greater part of my beds are circles—that is, the large ones, with the exception of one group of beds which nearly surrounds the summer-house. These circles are mostly in pairs about eight or nine feet in diameter, and placed each side of the walk, so that those who pass along the walks have to walk between them, and might be seen this next summer planted as follows:—No. 1 I shall call the first pair of beds; No. 2 the second. The centre of each of No. 1 to be planted with the *Humea elegans*; then a narrow circular band of variegated Mint to one, and a narrow band of *Flower of the Day* Geranium the other. Arranged as a star round this band is what is here called *Tom Thumb's Master* (I have a notion that it is the *Trentham Scarlet*, but that matters but little, it is a profuse bloomer); and the one that has the band of variegated Mint to be edged or Vandyked with *Flower of the Day*; and the other that has the band of *Flower of the Day* to be edged or Vandyked with the variegated Mint. This completes the first pair. The variegated Mint requires a little attention when it is first planted in the shape of pinching back, and also about mid-summer to keep it from flowering; which, when grown as it should be, is sure of ranking amongst the first variegated plants for bedding purposes.

The circular centres of the pair marked No. 2 to be planted with the blue *Maurandya*, which will be pretty well trained over two pyramidal-shaped wires before they are planted out. The star round the circular centre of each bed to be composed of the *Trentham Yellow* Calceolaria, which I suppose will soon be as hardy as the *Laurustinus*, having withstood these rather unusual severe frosts with impunity. The boundaries of the star—that is, inside the margin, to be planted with *Tom Thumb*, and the margin of each to be composed of two narrow bands; the outer one to be *Cerastium tomentosum*, and the other the *Lobelia speciosa*, which will well entwine together, and form an easy graceful margin. This is the way these two pair of beds will be planted here this coming summer; but they might very easily be altered so as to please the eye of the most fastidious. If the tall centres are not liked they might be planted with the same as the star, which would make them more pleasing to the eyes of many, or another dwarf kind used instead.—A. J. ASHMAN.

CACTI AND THEIR CULTURE.

PERMIT me to say a word or two in favour of this much neglected, yet highly interesting and ornamental class of plants. Their treatment and requirements are so simple, it seems truly strange they do not command more favour than is generally accorded them. What can be more showy than the *Epiphyllums* and their hybrids when in bloom, covered as they are, even under ordinary treatment, with blossom? I have seen plants that have not been fresh potted even for three or four years, a complete mass of bloom, and the admiration of all who saw them. I am, nevertheless, in favour of bestowing a more liberal treatment upon them, feeling quite sure any amount of extra trouble so bestowed will be amply repaid, more particularly as their blooming season may be made to extend from Christmas to October, or November, with a little management.

They delight in a compost of equal parts turfy loam, sheep's dung, and peat well mixed together, with one-seventh silver sand.

Potting may be done at any time during the growing season. Care should be always taken to secure plenty of drainage, and when flowering is over expose them as much as possible to the sun to ripen the wood well for the next course of bloom; after which gradually dry them off, and during the winter season give no water.

Plants required to bloom in January should be placed in the stove about the first of November, and should be dried off again as soon as their growth is made, those will then flower again in the autumn.

Those required to bloom in March should be placed in heat in January.

Those for June and July should be gradually brought on in the greenhouse, with plenty of air; or it may be even necessary to expose them to the open air, if dry in the month of June, more particularly so if required in July and August.

In the latter month, however, it will be hardly possible to retard them, unless such plants as were put in heat early, and

made their growth in February, and from which water was withheld, to throw them into a state of rest for a time, after which again gradually apply water.

Others will follow in succession, up to October, if the same rules be attended to in the same proportion.

The best way to train them is by placing two bands of strong wire, one just under the rim outside the pot, the other near the bottom, to which six or more sticks, according to the size of the plant, should be fastened by means of a piece of wire passed inside the wires round the pot, and tied to the sticks. Above the pot should be three, or more, hoops of wire to which the sticks should be also fastened, according to the height of the plant, and the plants brought to the outside and tied to them. By these means all your flowers will be brought to view, and the trellis will endure for years.

To those who possess only a small greenhouse nothing can be more valuable than this class of plants. If neatly trained they are never unsightly during winter, and require no attention except excluding from the frost, and are, consequently, a class of plants in which the attention they require will increase with the amateur's leisure.

Great is the pity Societies do not offer more prizes for them to encourage attention to their culture. No one attending those Shows at which they have been exhibited can have failed to notice the attraction they have caused, and many I have heard regret their exclusion in the schedules of prizes offered.—W. YOUNG, *Highgate*.

ARRANGEMENT OF BEDDING PLANTS.

WILL you kindly tell me if my arrangement for two beds will look well? I am limited in my choice of plants. I propose

1 ft. 6 in. from centre	15 in. apart	<i>Purple King</i> Verbena.
3 ft. 0 in. "	15 in. "	<i>Mrs. Holford</i> ditto.
4 ft. 6 in. "	15 in. "	<i>Brilliant de Vaise</i> ditto.
6 ft. 0 in. "	15 in. "	<i>Blue Bonnet</i> ditto.
7 ft. 6 in. "	15 in. "	<i>Senecio Mickana</i> on wire edging.

The next bed has a fine *Yucca* in the centre that I do not wish to move this season. The bed is 15 ft. by 9 ft., oval in form. The *Yucca* takes a circle of 3 ft. 3 in. Starting from outside, I have provided

<i>Lobelia speciosa</i>	6 in. from edge	6 in. apart.
<i>Flower of the Day</i>	12 in. "	12 in. "
<i>Perilla</i>	2 ft. "	15 in. "
<i>Punch</i>	3 ft. "	12 in. "

Commander filling the small oval space left.—NOVICE.

[All your plants and planting are right except the *Commander-in-Chief* Geranium, which being the same as *Punch* in the flower, and only different in the horseshoe leaf, is not sufficiently distinct to tell. Could you not get some few *Nosegays* instead?]

DEFICIENCY OF HEAT IN A PROPAGATING HOUSE.

I HAVE just had erected a small propagating-house heated by hot-water pipes, and these are enclosed within a chamber built with bricks, and covered over with fireclay pavement open at the seams. I had the chamber filled in with broken pieces of fireclay for the purpose of retaining the heat. The depth of this chamber is two feet, and the pipes are in the centre of this space. I have also an upper chamber over the pavement thirteen inches deep, in which I purpose plunging the pots with cuttings, also seed-pans. The plunging material is pit sand. The chamber seems to heat thoroughly, but it does not come up through the body of sand. Have I too great a depth of sand, or what is the reason? The pavement is five inches thick, so that the pipes will be about seventeen or eighteen inches from the bottom of the sand. A portion is divided and filled in with light soil about seven inches deep for striking plants; the pavement at this part being placed higher, which accounts for the difference of depth. Have I too much depth of soil for this purpose?—A SUBSCRIBER.

[We are not in possession of facts sufficient to enable us to judge exactly of the cause of the heat not rising. We think if less labour had been bestowed, there would have been more success. We have repeatedly stated of late, that for bottom heat under such circumstances, nothing is better than surrounding the

pipes with open rubble, as brickbats placed as hollow as possible, and placing rough and then fine gravel or other matter on the surface. In such a case as yours, we would not have had more than six or seven inches of sand; and then if the pipes were sufficient to heat the chamber sufficiently, the heat must rise. Now, though you do not tell us, we suspect that from that chamber you get enough heat for the atmospheric temperature of the house, as you say nothing of any mode of giving top heat. This would seem to imply that the heat from the chamber can get out easier by the side-walls, or some other means, than it can get through the lumps of fire-clay; the brick wall as we presume over them, and the fire-clay pavement above. Now, though the brick wall would get heated in time, there would, in the first case, be a radiation of heat back again into the chamber, and if that were bounded by walls, thinner than the brick floor and its pavement of fire-clay, of course it would escape from thence most readily. By the plan proposed above, there would only be a somewhat close covering immediately below the sand or other plunging material. Perhaps you have slides in the chamber for letting the heat out. Even under present circumstances we have no doubt that your heat will rise, if you can prevent the heat escaping at the sides. The heat when produced, cannot help itself—it must expand and rise, if it cannot get out sideways more easily. As far as we can understand your case, your extra care and nicety have been so many hindrances to the heat rising freely.]

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 323).

PLUMS.

ISABELLA.—Fruit medium sized, obovate. Skin deep dull red, but paler red where shaded, and strewed with darker red dots. Stalk three quarters of an inch long. Flesh yellow, juicy, rich, and adhering to the stone. Shoots downy.

A dessert and preserving plum. Ripe in the beginning of September.

Isleworth Green Gage. See *Green Gage*.

ITALIAN DAMASK (*Damas d'Italie*).—Fruit medium sized, roundish, slightly flattened at the base, and marked with a well-defined suture. Skin thick, membranous, and rather bitter, of a pale purple colour, changing to brownish as it ripens, and covered with fine blue bloom. Stalk three quarters of an inch long, slender, inserted in a deep cavity. Flesh yellowish-green, firm, rich, sugary, and excellent, separating from the stone. Shoots smooth.

A dessert and preserving plum. Ripe in the beginning of September.

ITALIAN QUETSCH (Altesse Double; Fellemborg; Quetsche d'Italie; Prune d'Italie; Semiana).—Fruit large, oval, narrowing a little towards the stalk, and marked with a shallow suture. Skin dark purplish-blue, marked with yellow dots, and covered with thick blue bloom. Stalk half an inch long, stout, and inserted in a pretty deep cavity. Flesh greenish-yellow, firm, not very juicy, sweet, and richly flavoured; when highly ripened separating from the stone. Shoots smooth.

An excellent dessert or preserving plum. Ripe in the beginning of September, and will hang till it shrivels, when it is very rich and delicious. This, I believe, to be the true *Semiana*. It well deserves a wall.

Jaune de Catalogne. See *White Primordian*.

JEFFERSON.—Fruit large, oval, narrowing a little towards the stalk, and marked with a very faint suture. Skin greenish-yellow, becoming of a rich golden yellow, flushed with red on the side next the sun, and dotted with red dots. Stalk an inch long, thin, and inserted in a shallow cavity. Flesh yellow, firm and juicy, rich, sugary, and delicious, separating from the stone. Shoots smooth.

A richly-flavoured dessert plum. Ripe in the beginning and middle of September.

Jenkins' Imperial. See *Nectarine*.

JULY GREEN GAGE (*Reine Claude Hâtive*).—Fruit the size and shape of the Green Gage. Skin thin, of a fine deep yellow colour, flushed with bright crimson on the side next the sun, and strewed with darker crimson dots; the whole covered with a delicate white bloom. Stalk three quarters of an inch long, slightly depressed. Flesh deep yellow, very tender and juicy, sugary, and richly flavoured, separating from the stone. Shoots smooth.

A first-rate and most delicious early plum, equal in all respects to the Green Gage, and ripening in the end of July.

Keyser's Plum. See *Hulings' Superb*.

KIRKE'S.—Fruit above medium size, round, and marked with a very faint suture. Skin dark purple, with a few yellow dots, and covered with a thick blue bloom. Stalk three quarters of an inch long, inserted in a slight depression. Flesh greenish-yellow, firm, juicy, sugary, and very richly flavoured, separating from the stone. Shoots smooth.

A delicious dessert plum. Ripe in the beginning and middle of September.

Kirke's Stoneless. See *Stoneless*.

Knevett's Late Orleans. See *Nelson's Victory*.

KNIGHT'S GREEN DRYING (*Large Green Drying*).—Fruit large, round, and marked with a shallow suture. Skin greenish-yellow, and covered with thin white bloom. Flesh yellowish, firm, not very juicy, sugary, and richly flavoured when highly ripened; adhering to the stone. Shoots smooth.

A dessert plum. Ripe in the middle and end of September; and succeeds best against a wall.

Knight's No. 6. See *Ickworth Impératrice*.

Large Green Drying. See *Knight's Green Drying*.

LATE GREEN GAGE (*Reine Claude d'October; Reine Claude Tardive*).—Fruit of the same shape but smaller than the Green Gage. Skin greenish-yellow, covered with thin white bloom. Stalk stout, three quarters of an inch long. Flesh green, juicy, rich and sugary, separating from the stone. Shoots smooth.

A dessert plum. Ripe in the end of September and beginning of October.

(To be continued.)

NEW BOOKS.

THE STRAWBERRY.*—There is a good deal of useful information in this pamphlet; but Mr. Cuthill does others and himself a wrong by not giving a list of other good Strawberries besides his own seedlings. The following extracts will show the nature of its contents; but the *Strawberry*, contrary to Mr. Cuthill's statement, bore that name long before the reign of Queen Anne. The very first book we take from our shelves, "The Gardeners' Labyrinth," published in 1594, has a part of one of its chapters devoted to the "Strawberie." It says, "This hearbe by diligence of the gardener becometh so great that the same yeeldeth faire and big beries, as the beries of the Bramble in the hedge, and hereof it seemeth that Virgilius Servius named the Strawberry 'The Mulberie of the earth.' Certaine skilfull men, by a diligence and care, procure the Beries to alter from the proper red coulour, unto a faire white, delectable to the eye."

Mr. Cuthill says—

"Strawberry growing has rapidly increased during the last ten years. It is scarcely a quarter of a century ago, that the author of this, when found by his employer watering forced Strawberries with a strong manure water, was threatened with dismissal if he used any more of that nasty fluid for his Strawberries! This same employer, only about three years ago, remarked how vastly things had altered; adding, that he much approved of liquid manure, and that the author's case was not to be compared with that of the old Dutch gardener, who came over to England in Queen Anne's time, and settled on the Grosvenor estate, between Vauxhall and Chelsea. The Dutchman knew, that unless the

refuse from the ground was again put back, the crops must fail for want of nourishment. An action-at-law was commenced against him; but the landlord forgave him, provided he would not again poison the land with his filthy stuff!

The Strawberry, up to the time of the Dutch gardener's arrival in England, was called *Woodberry*. One year a very heavy hailstorm came over London, and spoiled all the *Woodberries* with grit and mould; next year the gardeners laid straw under them, and, from that time, they have been called *Strawberries*.

"This most delicious and wholesome fruit is very largely cultivated for the London markets, and more fruit is even consumed in the villages surrounding the metropolis than in the largest provincial town in England. It is indeed difficult to discover the correct acreage devoted to the growth of this delightful fruit in the suburbs of London, but it may be fairly estimated to be about three hundred acres."

"I never cut the leaves, nor yet the roots, nor at any time cut off or remove the dead leaves."

SEWAGE AS A MANURE.†—The author is a very strenuous advocate of the use of sewage as a fertiliser, and of the detaining it from polluting our rivers. He justly says that by allowing it to run into those streams their water "is being defiled, manure wasted, and land starved." The reader will find in the pamphlet some very sensible remarks, and a numerous collection of authorities quoted to sustain them.

HARDY FLOWERING HERBACEOUS PLANTS.

(Continued from page 285.)

BUPLEURUM—HARE'S EAR.

Nat. ord., Umbelliferae. Linn. Pentandria Digynia.

GENERIC CHARACTER.—Fruit ovate-oblong, obtuse, with ribs prominent, acute, and abrupt; interstices flat; juncture contracted. *Calyx* none. *Petals* equal, broadish-wedge-shaped, very short, involute. *Styles* very short. *Floral receptacle* none. *Flowers* all perfect and regular.

BUPLEURUM AUREUM (golden). *Leaves* coriaceous, radical ones ovate, ovate-oblong, obovate, attenuated at base into the petioles; stem ones ovate, acute, stem-clasping; *involucre* leaves three to five, nearly orbicular, mucronate; *involucel* leaves five, conforming to those of involucre, coloured, longer than the flowering umbels. 1 ft. Yellow. May. Siberia.

B. CORIACEUM (leathery). *Leaves* lanceolate, narrowed each way, entire, sessile; *involucres* and *involucels* reflexed. 1 ft. Striped. August. Gibraltar.

B. FALCATUM (sickle-leaved). *Leaves* oblong, lower ones oblong, petiolate; stem ones sessile, linear-lanceolate, attenuated at both ends; *involucel* leaves oblong-lanceolate, acuminate. 6 in. Green and Yellow. August. Germany.

B. GRAMINIFOLIUM (grass-leaved). *Stem* nearly naked; *radical-leaves* linear; *involucre* leaves three to five, elongated; *involucel* leaves five to eight, oblong, mucronate. 6 in. Green and yellow. June. Switzerland.

B. LONGIFOLIUM (long-leaved). *Leaves* ovate-oblong; radical ones petiolate; stem ones stem-clasping; *involucre* leaves three to five, ovate, rather acuminate; *involucel* leaves five. 3 ft. Green and yellow. June. Switzerland.

B. MULTINERVUM (many-nerved). *Radical leaves* oblong-linear, attenuated at both ends; stem leaves stem-clasping, ovate, acuminate; nerves many, parallel; *involucel* leaves five, ovate, acuminate, coloured. 3 ft. Yellow. Altai.

B. PANICULATUM (panicked). *Stem* erect, panicked; *leaves* linear-narrow, many-nerved, radical leaves very long; *umbels* two and three-rayed; *involucre* leaves two and three, small; *involucel* leaves four and five, subulate; *fruit* oblong. 1½ ft. Yellow. July. Spain.

B. PETREUM (rock). *Involucre* five-leaved; *involucels* usually five-leaved, joined together; *stem leaves* cordate-lanceolate, stem-clasping; *radical leaves* linear. 1½ ft. Green and yellow. July. Spain.

B. POLYPHYLLUM (many-leaved). *Stem* erect, striated; *leaves* lanceolate, stem-clasping; *umbel* rays many, unequal; *involucre* almost none; *involucel* leaves six, lanceolate, acuminate. 1 ft. Green and yellow. May. Caucasus.

B. SCORZONEREFOLIUM (Scorzonera-leaved). *Stem* paniculately

* *The Culture of the Strawberry as practised by the Author*. By James Cuthill, Camberwell.

† *The Reform of the Sewers, &c.* By G. Rochfort Clarke, Esq., M.A. Oxford and London.

branched; *radical leaves* lanceolate; stem ones linear, all striated with nine and eleven parallel nerves; *umbels* eight to ten-rayed; *involucre* one and two leaves; *involucel* leaves four and five, lanceolate, apiculated. Yellow-streaked. June. Germany.

A genus of hardy plants with handsome foliage, and heads of rather pleasant-looking flowers. They require a good sandy dry loam, and are easily propagated by dividing the roots in April, replanting immediately in fresh soil.

T. APFLEBY.

(To be continued.)

TRADE LISTS RECEIVED.

MESSRS. ARTHUR HENDERSON & Co., Pine Apple Place, London. No. I.—*A Catalogue of Orchids, Select Stove Plants, Greenhouse Plants, &c.*, is a comprehensive and well-arranged list, interspersed with useful notes. No. VIII.—*A Catalogue of Flower Seeds* is also an excellent list, with the botanic names accentuated throughout. *Trees, Shrubs, and Roses, and Fruits*, are both good catalogues.

A Descriptive Catalogue of Select Vegetable and Flower Seeds by John C. Shiells, St. Enoch's Square, Glasgow, is a good list of the articles usually kept in a respectable seed establishment.

A Descriptive Catalogue of English and Foreign Novelties, by John Salter, Versailles Nursery, Hammersmith.—Those who want to know about Chrysanthemums, Phloxes, Irises, and plants of that description should procure Mr. Salter's catalogue, which will tell them all they require to know on these subjects.

TO CORRESPONDENTS.

WEEKS'S HEATING SYSTEM.—In THE COTTAGE GARDENER, at page 324, there is an article headed "Houses not Heating," signed by "T. W. T.," in which it appears that it is one of our hot-water apparatuses. We are not aware that we have done a single job without giving perfect satisfaction; therefore, we shall be obliged if "T. W. T." will favour us with his name and address.—JOHN WEEKS, King's Road, Chelsea.

REPAIRING A MOWING MACHINE (L. B.).—You had better write to the maker of the machine, and tell him how it now bothers, and ask him the easiest mode of getting it repaired, as the Norwich whitesmiths have failed to effect a remedy. We will take this opportunity of warning all gardeners, that a mowing machine is always liable to be spoiled if it is not thoroughly cleaned, and the cutting-blades oiled all over when it is put away after using.

KNIGHT'S PERFECTION PEA (H. Marshall).—The height of all varieties of Pea will vary rather with the richness of the soil and the dryness of the season. On a moderately fertile soil, and in an averagely moist season, *Knight's Perfection* is five feet high. We are pleased to hear that a very extensive experiment has been instituted at the Chiswick Garden to test the merits and the originality of the very numerous varieties of garden Pea.

MOTION OF THE SAP (Elchies).—This can best be observed by the aid of the microscope, in one of our native aquatic weeds *Chara hispida*, and in *Chelidonium majus* or Common Celandine. We have been told that it may also be seen in *Valisneria spiralis*. The mode of proceeding to observe the motion in the *Chara*, is fully detailed in Raspail's "Organic Chemistry" (Henderson's Translation), page 356.

ANNUALS FOR BEDDING-OUT (Lancaster).—Public writers are exempt by common assent from the etiquette of answering private letters—they cannot spare time for that. The frosts of 1859 and 1860 will do immense good in flower-gardening. Thousands like yourself must make up this seasons with annuals, and annuals are they which teach the art of arranging flowers on a natural scale of colours. Red Geraniums and Verbenas, Yellow Marigolds and Calceolarias, white and purple Petunias, and blue Salvias and Verbenas, are all good in their way, but not for teaching the art of planting;—they only make lazy beds as compared with annuals, in which every tint and shade, size and substance, stature and style of growth are given; and without the eyes are practised on all these, it is utterly impossible for one ever to learn more than to be able to plant a few lazy beds, and to repeat them from the other end of the scale, and then across from both sides. A flower garden ten times the size of yours could be kept gay with annuals alone. First of all, Rose-beds, or a Rose-bed of standards in the centre of a flower garden must have every inch of the ground covered with Mignonette, to be sown early in April, and to have the seeds cut off as fast as they occupy one-half the flower-stalk. Your two 6-beds plant with *Tom Thumb* Nasturtium or *Tropæolum*; 2 and 4 with blue *Lobelia speciosa*; 5 and 3 with something very low and very yellow—say the dwarf yellow French Marigold; and 7 7 must be of three or four kinds of tall things, of which Zinnias in two straight rows must be at the back, but the rest must be your own choice; and if you only keep to the colours, as we say, any kind of annual you may like better will do just as well. If your garden were ours we would have four kinds of annuals in each bed, we are so fond of them, as you may see by our early volumes. But one thing we never did and never can do; and that is, say how much seeds for so many beds.

MUSHROOM-BED (W. P.).—In our No. 577, you will find a long article on the subject by Mr. Errington. In making the bed, which should be under a shed, you may proceed as in making a Cucumber-bed, only the spawn must not be put in until the heat becomes very gentle. For producing Mushrooms in winter, a bed should be made in August, and for succession another at the end of October, and a third in January. If you require directions on any point, write again.

CAMELLIA FLOWER-BUDS FALLING (Infirmis).—The vicissitudes of temperature "in a drawing-room without any fire at all" were quite enough

to cause the buds and leaves to fall, even without the dryness of the air in such a room. Camellias require to be kept free from frost, although they are hardy, and to have abundance of air.—Write to Mr. T. Moore, West Street, Farcham, and tell him the kind of Canary you require. Of the other birds we regret that we can give you no information, but we will inquire.

GARDEN PLAN (A Four Years' Subscriber).—Your system of bedding is the most complicated we ever saw; but your crossed-beds we have seen tried by Mr. Barnet, in Edinburgh, more than thirty years back. If we had power, we would banish all such beds. Your windmill-like beds are little better, but in them, and in the centre, and two side-beds, you have managed the heights and colours exceedingly well. One would think your head is full of the Plaids of the Clans, for that is just the pattern-book for your style of bedding. Messrs. Carter will give you the true Yellow Marigold, certain. We never say the quantity of seeds, but we always sow very thickly, and thin early.

WHAT IS STERCUS?—An Amateur Gardener asks "Is the article advertised under the name of "Stercus," the same as shaddy-waste, used in the neighbourhood of Manchester for forcing? and what are its merits in general garden culture?"

SOIL FOR VINE-BORDERS (A. K.).—If you can get plenty of turf, and that is pretty good, we should use little or none of the garden soil. Were we making Vine-borders to-morrow we should desire no better chance, and we should not make the borders more than four feet in width at first, but would add to them every year until the space was filled, and then we should top dress a little every year. We should rather avoid much chopping and turning of the compost: it will decay fast enough. We should proceed thus:—Supposing the border well drained, place the turf in layers, with a little leaf mould and a few bones, and some lime rubbish sprinkled between them; and when within nine inches of the top use the soil obtained under a thin layer of turf, and to every eight barrow-loads of that add a barrow-load of leaf mould and one of lime rubbish, and in this plant the Vines, and mulch with fresh horse-droppings.

PLANTS TO BLOOM IN A CONSERVATORY ALL THE YEAR (A Constant Reader).—We recollect your note, and replying that we wanted more definite information as to whether the house was span-roofed or lean-to, and the arrangement in the house, and the sized plants you chiefly wanted. For instance, how many pots can you put in your house at a time to do them justice? Some people would fill such a house (12 feet by 9 feet) with very few, and others for variety would prefer several dozen. For want of such information we must just suppose a case, and probably you would get nothing to suit you. Give this information and we will endeavour to meet your wishes.

CLIMBERS IN A GREENHOUSE (J. C.).—We here are in much the same position for want of knowing the height of the house, the height of the side-walls, and the height of the end-wall next the dwelling-house, and if the south-east end is of glass. The mode of furnishing the interior would also be a help. With your limited command of heating power we can hold out no hopes of succeeding with tender climbers turned out of doors in summer, and you seem to have made no convenience for taking them out and in easily. We think the numbers marked will be quite sufficient for the house; but the kinds would depend chiefly on the room and height you could give them. As soon as we know that we shall be glad to assist you, and will keep the letter for reference.

CUCUMBERS IN A STOVE (J. Stephens).—Your house with the heat you give it (63° day and night), is not a greenhouse, but a plant-stove or forcing-house! You will injure any greenhouse plant kept long in that temperature in winter. You would not have had far to look back to find the information you want. In your circumstances we would proceed thus: At the hottest end of the house, supposing the flues are close or near together, shut off a space for a small hotbed. If the flues are strong, build a wall on the top of them a yard long and thirty inches high, and shut in the ends; the wall of the house will form one end. Fill that pit above the flue to within eight inches of the top with clinkers, stones, &c., roughly and openly put together, and cover the top with tan, ashes, or sand, and there raise and grow your plants when young. If the flue is not strong enough, build a wall by the side of it, and make a pit in the same way, or place a layer of bricks above the flue, and raise above it a bottomless wooden-box, part of which you may fill with tan, sweet dung or leaves. If even that is objectionable, a large hamper filled with fermenting material would suit your purpose; but the box or the pit would be preferable. The latter could be removed when not needed. When the plants get to eighteen inches or so in height, they could be set along the flues. A couple of bricks and a sod, or a water-pan being placed under each pot. The best plan to give moisture to the house is, to have evaporating-pans, or basins, placed in all open spaces on the top of the flue, and to keep the ground, or floor, near the flues moist. You need not throw away you lanky plants. Put each of them in a three or four-inch pot, with the roots at one side, and after covering them lay the lanky stem along the side of the pot inside, and hardly cover it, leaving the seed-leaves above the rim. If these are then plunged near the glass, as suggested, the stems will emit roots, at least many of them, and good plants be secured.

TOO MUCH TOP HEAT AND TOO LITTLE BOTTOM HEAT (A Subscriber, — Holt).—You say nothing as to the position of your pipes, but we presume those for top heat are higher in level than those for bottom heat. Do the air-pipes rise considerably higher than the supply cistern? Where is that cistern? It seems strange that with a two-foot boiler, and something like fifty feet of three-inch pipe, you should lose some thirty or forty gallons of water in a night, and that thrown out at the air-pipes. However, it is quite evident that you have not made allowance in such a small place for the expansion of the water by heat. Did you put a kettle on the fire, full of water, you would find that it would run over long before it came to the boiling point. If the ends of your pipes ended in a cistern containing several gallons, above the pipe level, you would need no air-pipes, and the water would rise in the cistern when hot, and fall when cool, and thus always keep the pipes full, with but little attention. We would suggest this without any alteration of the boiler, that is evidently all right. You can put as little fire as you like. The simplest plan, would be to fix a wooden tank lined with lead at the end of the pipes, and take the open-air pipe into it near the bottom.

VINE BEETLE (A. Z.).—It is one of the Weevils so frequently injurious in the vinery, by eating the leaves. It is the *Curculio picipes*, so called from its dull black colour. There is no better plan for destroying it than

after dark to go with a candle and spread a white sheet beneath the Vine, and then to shake the tree. The Weevils fall upon the sheet and are easily caught.

HEDGEHOG CUCUMBER (*Plymothian*).—This “the size of a Bantam’s egg, prickly all over, and used for both preserving and pickling,” is not a Cucumber. It is the *Gooseberry Gourd*, and you will find it in Messrs. E. G. Henderson & Son’s long list of Gourds.

PROPAGATION OF MISTLETOE (*A Subscriber*).—The best months for sowing it are February and March. Make two cuts in the shape of the letter V, on the *under side* of the branch of an Apple tree. Make the cuts quite down to the wood of the branch; raise the tongue of the bark made by the cuts, but not so as to break it, and put underneath one or two seeds freshly squeezed from the Mistletoe berry. Let the tongue back into its place, and the process is completed. If the seed is good, the seedlings, not unlike Cucumber plants, soon appear. They remain attached to the branch, and do not seem to injure the tree. Open the bark underneath the branch to receive the seed, because it is thus preserved from an accumulation of rain water, and is shaded from the sun.

PEARS FOR AN EXPOSED SITUATION (*John Turner*).—On your standards near Stockport, you had better graft *Williams’s Bon Chrétien*, *Beurré Superfin*, and *Winter Nelis*.

POULTRY AND BEE-KEEPER’S CHRONICLE.

POULTRY SHOWS.

FEBRUARY 29th, and MARCH 1st, 1860. ULVERSTONE. *Sec.*, Mr. T. Robson. Entries close February 11th.

MARCH 15th, 16th, and 17th. CUMBERLAND AND WESTMORELAND. *Hon. Secs.*, Mr. J. J. Lonsdale, and Mr. W. D. Hastwell.

MAY 23d and 24th. BEVERLEY AND EAST RIDING OF YORKSHIRE. *Sec.*, Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

JULY 18th and 19th. MERTHYR TYDVIL. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

N.B.—Secretaries will oblige us by sending early copies of their lists.

KEEPING POULTRY PROFITABLY.

“Observing that you intend to add another article to the one in your paper of last week on keeping poultry for a profit on a large scale, I take the opportunity of saying, before you conclude your observations on the subject, that it would doubtless be very acceptable to many of your readers, and to myself among the number, if you would favour us with an article upon the keeping and managing of poultry on a small scale—where there is, for instance, only one small farmyard, and yet where chickens are required for the table (about three or four dozen), and also eggs, about 1200 or 1400, in the course of the year for the house. Under these circumstances the difficulty lies in keeping the two best kinds, one for each of these uses, which I presume to be the Grey Dorking and the Black Spanish, on the same premises without the breeds becoming intermixed. Would it answer for eggs, merely to keep the Spanish pullets without any other cock but the Dorking, the Dorkings being kept, cocks and hens? or would it answer to enclose a portion of the yard entirely for the Spanish, leaving the Dorkings at liberty to run about? or would it be best under these circumstances merely to have one breed of poultry for both chickens and eggs? and if so which would be the best, Dorkings or Spanish, Hamburgs (either Silver or Gold-spangled), or Game? And what number of birds, distinguishing cocks and hens, should be kept for the supply required—about four dozen chickens for the table, and about 1400 eggs for the kitchen, &c.?”—*Eco*.

[In the habits of fowls, as in everything else that Nature has done, all is perfect. Thus it is impossible, reasonably, to require that which cannot be found. Certain breeds lay only; others are more prized for their sitting and rearing properties than for any others. Some do as well in confinement as at liberty; while others roam all over the country; compensating, if any compensation be necessary, for their erratic habits by finding great portion of their food in their wanderings, and thus lessening the expense of keep, as compared with those sedentary birds that remain quietly at home, and eat if food is given to them.

Brahma Pootras, Cochins, and Spanish, are the birds that will do in confinement. Any corner of the yard may be parted off, and will afford either breed all it requires; and if no corner can be spared, then an odd pigstye will answer the purpose, all the necessary preparation being to put up a perch, to clean and gravel the ground, and to put a net over the open part. This is not imaginary; the writer has often done it, still does it, and has bred many a good brood of chickens in a pigstye. But Spanish have one serious drawback—they are not sitters, and are, consequently, useless to perpetuate a breed. This must be remedied by the adoption of good mothers for the other breed. Take

Dorkings, or if you have either Brahmas or Cochins for your layers, they will supply mothers at any time. We should allow twenty hens to lay 1400 eggs, and trusting to them to be the mothers and nurses of those required for table, we should want only two hens to lay the necessary eggs to provide the four dozen eating fowls. We presume you wish to keep two breeds. If you do not, you can easily manage by procuring eggs of the breed necessary for your table fowls, and they will be Dorkings, and by putting them under your Brahmas, secure yourself what you require without having two breeds on the premises. The Dorking would be the best general breed to keep; but it is not so much in repute for winter laying as the other. They are, nevertheless, good layers, and if they were preferred as the more numerous breed, then, instead of Spanish, let either Cochins or Brahma pullets be kept, let them run with the Dorkings, but have only Dorking cocks; the eggs will always be distinguished by their colour. At the risk of being accused of repetition, we remind you hens will not lay in the winter; for that purpose you must have pullets. Try fifteen Brahma or Cochin pullets, with one cock and five pullets, Dorkings. Let them all run together, and we think you will easily attain what you propose. Your must feed as we have lately advised, or you will not find profit. If you will attend to it yourself, you may have cheap eggs and cheap poultry.

First: We take it for granted that fowls of the Cochin and Brahma breeds lay at twenty weeks old, also that they lay thirty eggs before they are broody. You require six eggs daily from the 1st of November till the 1st of March. You will require seven pullets hatched in April, seven hatched in May, and seven hatched in June. The pullets that laid the first eggs will lay the last. We purposely put the numbers low to allow for some sitting in each month. Poultry in the spring must be eaten like early vegetables—as a treat, or that dish which marks the difference between the ordinary meal and that which is prepared for a few friends. Chickens are of slow growth in the winter, and of tardy maturity. If of any other breed than Cochins or Brahmas, the chickens hatched in September will supply you till March: you must, therefore, hatch two small broods in each succeeding month, and that will supply you with all you require. There is no difficulty in this where there are birds of all ages, and we find we are never without a broody hen or two. That which we have endeavoured to describe is done by those who in Surrey, Kent, Sussex, and parts of Hampshire and Berkshire, take shares of the hundreds of thousands of pounds that are sent there for poultry for London.]

CONSTANT SUPPLY OF EGGS AND CHICKENS.

AFTER the many remarks about eggs, &c., that have appeared in your paper, I think if you would sketch out a plan for securing a succession of eggs and chickens it would interest many of your readers. Putting together the hints which I have gathered from many books and from the numbers of your journal, the following seems to me to combine the objects which poultry breeders have usually before them:—Hatch some Spanish and Cochin pullets in March or April, and some Dorkings in July.

The early pullets will begin laying in October or November, and continue through the winter. The Spanish eggs will produce early chickens for the next spring, and the Cochin pullets will be willing to sit all through the winter. The July pullets will be active layers in the following spring, beginning about March.

This plan seems to combine the requirements of constant supply of eggs, constant supply of sitting hens, and early birds for the table in the following spring. Of course there will be no difficulty in getting either eggs or chickens of any breed when winter is gone. This is the plan I am setting before myself this season, and I shall be obliged by your corrections and suggestions. —C. R.—[See what is said above.—Eds. C. G.]

POULTRY SWINDLERS.

WE again have to warn our readers, however specious may be a strange applicant’s statements, never to part with their birds until they have been prepaid for them. The gang who exercise their ingenuity to defraud the owners of valuable fowls write in a style betokening education, employ paper stamped with a coat-of-arms, or headed as from a mercantile firm, ask for information, decline to prepay “on principle!!!” because on former occasions the poultry and pigs so purchased were not satisfactory, and negotiate with all the candour and perseverance usually characteristic of honesty. We have before us a correspondence thus

conducted between swindlers at Fulham and their victim near Nottingham: we have taken some trouble to trace those committing the fraud, and find that there are at Fulham parties of the name assumed, and residing in the house named in the letters addressed to poultry owners. If those who have sent fowls to them will instruct the police, and ascertain from the railway porters to whom the fowls were delivered, we have reason to believe the law will grapple effectively with the villains.

However, run no risk of being obliged to have recourse to the law; and, to avoid such a risk, whether an offer for poultry comes from Manchester, or Fulham, or elsewhere—unless you know the writer, NEVER PART WITH YOUR FOWLS BEFORE YOU RECEIVE PAYMENT FOR THEM.

COCKS' EGGS, AND THE SEX IN EGGS.

THE belief in cocks' eggs may be classed amongst the large number of vulgar errors. However, they are very small eggs, but laid, of course, by hens. I have seen several, and have one now about the size of a sparrow's egg, the shell of which is of an unusual thickness. It seems difficult to explain the cause of hens laying such puny eggs; for they do so when in good health, and at various times during their usual period of laying. It cannot be expected that such eggs are impregnated; but if they were it would be difficult to distinguish the "air circles," or fruitful specks, in them through their thick shells.

Some keepers of fowls profess to know the sex in eggs by carefully observing those specks. A friend of mine, who has had long experience in fowls, says that he can have pullets or cocks exactly as he selects the eggs. Those which produce cocks have the fruitful specks in the crown of the eggs; but those which bring pullets have them on the side of the crown. This agrees in part with "D. D.'s" statement at page 264, that from a selection of "thirteen eggs, having the air circles on the side, and not on the crown of the egg," he obtained twelve pullets. I should notice that the speck is always at the thick end of an egg, and, except a dark one like that of a Cochinchina, is readily seen by holding this up to the light, with the shade of the other hand over it. Eggs having no visible specks are almost sure to be addled or rotten in the nest after the usual time of incubation.—J. WIGHTON.

HONEY HARVEST OF 1859.

THE following is an account of my success in bee-keeping last year, the district being only a moderately good one:—

Stocks in the spring	17
Swarms (the first May 27th)	7
Casts (all returned)	4
Hives taken up the last week in July	8
Produce of apiary:—	lbs. ozs.
Glasses and boxes	103 10
Drained honey	123 3

Total..... 226 13

Stocks remaining, which are all well supplied 16

First prizes were awarded at two Horticultural Shows for glasses exhibited.

Perhaps this account may encourage some of your apiarian readers, for I have kept bees for twelve years, but only last year and the previous one with any amount of success.—A NORTH-AMPTONSHIRE (N.) BEE-KEEPER.

THE LATE DR. BEVAN, THE APIARIAN.

IT is with much regret, which will be shared by a wide circle of friends and acquaintances, not to speak of the thousands to whom bee-keeping is a pastime or a profit, that we announce the death, on January 31st, at his residence near this city, of Dr. Edward Bevan, the venerable author of that well-known work "The Honey Bee." The learned Doctor had reached the ripe age of ninety, when the burden of years, without any disease, at length laid him low.

Dr. Bevan was born in London,* on the 8th July, 1770. Being early left fatherless, he was removed in his infancy to the house of Mr. Powles, his maternal grandfather, in this city; and

* It was erroneously stated in our Number 593 that he was born at Hereford.—Edg. C. G.

where, under the kind and sedulous care of his excellent and talented mother, he spent his childhood until his removal to the grammar-school of Wotton-under-Edge, which he entered at the early age of eight years. After remaining in that school for four years, he returned to Hereford, and was placed by his grandfather at the College School. There he remained until he was about to commence his professional studies. His own mind was disposed towards the Church, but by the advice of his uncle, Mr. Powle, surgeon, of Wotton, who had adopted him, he devoted his attention to medicine. In after years he admitted that the choice made for him had been a judicious one, the medical profession affording him scope for the spirit of free inquiry which characterised him. In his professional studies under Abernethy and others, he was known as "the indefatigable"—a complimentary soubriquet which he well deserved.

At Mortlake, Surrey, he became an assistant to Dr. John Clarke; and after five years so spent commenced practice on his own account at Stoke-upon-Trent, from which place he subsequently removed to Congleton, Cheshire. After twelve years' practice in that town, his health beginning to give way, Dr. Bevan was induced by his friends to remove to a more limited sphere of usefulness. He soon afterwards settled upon a small estate which he had purchased at Bridstow, near Ross, in this county.

It was soon after his settling at Bridstow that his mind was directed to the study of the habits of bees, which ultimately issued in his producing the standard book on apiarian pursuits. To quote from a memoir of the learned Doctor, which appeared in the "Naturalist" some years ago:—

"Incentives were supplied by several eminent apiarians and naturalists with whom he became acquainted, namely the Rev. Richard Walond, Thomas Andrew Knight, Esq., Robert Golding, Esq., and the Rev. Dr. Dunbar. With the latter gentleman and several others he maintained a regular correspondence for years, and a comparison of experimental results; and to Mr. Walond he dedicated his first edition of the 'Honey Bee.' This work was published in the year 1827, was well received, and established the author's reputation as a scientific apiarian. His attention to the honied race has known no abatement since, and has led to the accumulation of a body of valuable information, which has recently been given to the world in a second edition of the 'Honey Bee.' This work has obtained the meed of approbation from almost every quarter, being regarded as 'the most perfect and philosophical' that we have upon the subject. It is dedicated to Her Majesty, in a style peculiarly neat and appropriate; and we cannot withhold from our readers the terms in which it is spoken of by one of its reviewers:—'The dedication is a singularly felicitous production, affords a fair sample of the author's literary qualifications for his task, and as it is further recommended by its brevity, we make no apology for quoting it.' Having presented his readers with a transcript of it, the reviewer concludes thus:—'In the collection of his materials—materials of the most curious and interesting character—Dr. Bevan has laboured with a degree of industry that would do credit to the little insect subjects of his book.' This work, with the exception of an occasional contribution to the periodical press, is all that the Doctor has ever published; but in the year 1822 he assisted his friend, the late Samuel Parkes, Esq., in a revision of the third edition of his 'Rudiments of Chemistry.'

"In 1833 he joined that enlightened band of naturalists by whom the Entomological Society was established, entering it as an original member; but his distance from London has prevented his attendance on more than one of its sittings.

"His personal expenditure was in all respects moderate, his diet of the simplest kind, his hours early, still rising at six; and, like his preceptor, Abernethy, he for many years regularly took a siesta after dinner. This was at all times his sovereign restorative. After the greatest fatigues of his laborious profession, to stretch his weary limbs on the carpet, for ten or fifteen minutes, at the feet of his wife, with her footstool for his pillow, would enable him to resume his toils far better than any internal cordial; and to the last he found his afternoon nap as refreshing as his night's repose, and a necessary stimulant to his invariable practice of reading aloud for a couple of hours, to his family, after their afternoon coffee. The time which he devoted to study, as being the freest from interruption, was from six to eight in the morning, and an hour or two after he retired for the night; that between breakfast and dinner was chiefly appropriated to his extensive correspondence, his garden, and the fields.

"Although playful, and even jocund, amongst his intimate friends, he was reserved towards strangers, and was never able to

subdue his repugnance to promiscuous society; generally avoiding engagements which would interfere with his ordinary habits. Though not possessing a robust constitution, his health suffered few interruptions. His temper was remarkably placid; and if not impervious to annoyances, he was seldom excited to anger. It was pleasant to contemplate him in the unostentatious retirement to which his boyhood aspired."

To this just and accurate view of our departed friend's character, we may add that in 1849 he took up his abode in this city, and continued to reside here until his death. In February, 1852, at the time of the tremendous flood of the Wye, the Friars, then occupied by Dr. Bevan, was isolated by the flood. The waters, rising not less than twenty-one feet above the ordinary winter level, filled the ground floor of the house, destroying the Doctor's bees and bee-boxes, and adding to the miseries of an inundation the danger of starvation. At length, a boat with provisions reached the Friars, and rescued its inmates from the most pressing of their trials; and the gradual subsidence of the waters after a few hours longer of this imprisonment, at last dissipated the fears which some persons had begun to entertain as to the danger of the foundations of the house being undermined. In consequence of the publicity given in our columns to the somewhat striking incidents of the great flood of Candlemas-day, 1852, some kind friends at a distance showed their esteem for the venerable Apiarian by presenting him with a fresh set of bee-boxes, of which, as a very pleasing substitute for what he had playfully called his "Virginian Temple," which had been destroyed by the flood, Dr. Bevan was justly proud.—(*Hereford Times*.)

BEE-HIVES.

IN reading the celebrated Diary of John Evelyn the other day I was much interested by the following passage, which shows that the plan given by Nutt in his interesting book on the management of honey bees, though, no doubt, discovered by him, was practised in England two hundred years before.—CHARLES E. N. ROBINSON, *Therfield Rectory, near Royston*.

"* * * July 13th, 1654, Oxford.—We all dined at that most obliging and universally curious Dr. Wilkins', at Wadham College. He was the first who showed me the transparent apiaries which he had built like castles and palaces, and so ordered them one upon another, as to take the honey without destroying the bees. These were adorned with a variety of dials, little statues, vanes, &c.; and he was so abundantly civil, finding me pleased with them, to present me with one of the hives which he had empty, and which I afterwards had in my garden at Sayes Court, where it continued many years, and which his Majesty Charles II., came on purpose to see and contemplate with much satisfaction."

LIGURIAN BEES.

I HAVE to thank the Editors of THE COTTAGE GARDENER for their kindness in giving publicity to my offer to aid in extending the cultivation of the Ligurian race of bees.

Many applications have already been forwarded to me; and as nearly every one asks for information, it may be as well to state more in detail the circumstances under which my offer is made, and the manner in which I propose to carry it out.

I possess four Ligurian queens, all of which are at the head of strong stocks. Being desirous of extending the culture of what I believe will turn out a valuable improvement on the ordinary honey bee, I am willing to forego the honey harvest, and the natural increase of these interesting strangers, by devoting my attention and the resources of my apiary to the multiplication of Ligurian queen bees by artificial means. Although my experience in this department of apiarian science has hitherto been limited to the production of a single queen, I have little doubt of success; and without pretending to rival M. Hermann, who states that he can produce one hundred in one year from a single stock, I believe, that if sufficient notice be given, I shall be able so to multiply my four Ligurian queens as to supply any demand that is likely to arise.

As my ability to carry out my intention is entirely dependent on the success of the experiment, I do not wish money to be remitted until the queens are received. Every subscriber will be advised by post of their despatch, and will receive directions for uniting them to stocks or swarms.

It is probable that but few workers will accompany the royal travellers, and that they will generally be working bees of the ordinary description. Any attempt, therefore, to establish these foreigners otherwise than by placing them at the head of stocks or swarms, must necessarily end in disappointment.

In conclusion, I may repeat that half a guinea will be charged for each fertile Ligurian queen—that queens can be forwarded to any part of the kingdom—that orders will be executed in the rotation in which they are received, and are kindly permitted to be addressed to THE COTTAGE GARDENER Office, whence they are promptly forwarded to—A DEVONSHIRE BEE-KEEPER.

[We would suggest that in all cases where it could be made convenient, the experiment of introducing the Ligurian bee should be made with two queens. The risk of total failure will, by so doing, be much diminished, as will also the danger of the race being hybridised in future years by admixture with the common bee.—EDS. C. G.]

M. HERMANN, of Tamins-by-Chur, having appointed G. Neighbour & Son, of 149, Regent Street, his sole agents in England, they make the following extract from a letter they have recently received from him:—

"I think to go to Havre this month (February), and if I have sold certain 100 hives, then I will go to London. One hive I cannot send, the price is £2 10s., without freight from Genoa to London.

"We have much more progress here than in France, our Bee-keeping is on a high point, but the Frenchmen are not much higher than the Italian people, which does know nothing.

"In Germany there is a Bee-keeper (Altenberg) which has received from 80 Italian hives 90 lbs. of Honey of each last season, his neighbour has received nothing, having only Black Bees.

"All our Bee-keepers (I speak from such gentlemen which have 100 hives) will not have other bees than Italian ones. Every one makes fortune with this bees. Every gentleman in our district likes now to have such bees in his Garden, so that we have very enthusiastic Bee-keepers, and I cannot acquire enough of such bees.

"I am yet alone and have no one else which would make the same business. I send you a copy of my book for translation, I beg you to tell me how much it would cost to print it in English, at London."

A CURE FOR THE BLUES.

IF a "RENFREWSHIRE BEE-KEEPER" will protect the fronts of his bee-hives with a galvanised wire netting (say three-quarter-inch mesh, or smaller, if necessary) placed just so far in advance of the alighting-boards as to do away with the possibility of their being reached by his diminutive enemies, and so gathered in at the top, bottom, and sides, as to prevent them from getting behind the fence, he will by this means be enabled to keep the blue devils effectually at bay without much interference with the flight of his little favourites until the season shall be so far advanced as to render protection unnecessary.—A DEVONSHIRE BEE-KEEPER.

OUR LETTER BOX.

CRYSTAL PALACE POULTRY SHOW.—We are requested by Mr. John Robinson, Vale House, near Garstang, to state, that his White Dorking fowls did not arrive at this Show until after the Judges had given in their awards for the White Dorking classes; they were thus deprived of any chance of appearing in the prize list.

WHAT IS MEANT BY "A PAIR OF PIGEONS?" (*Pigeon*).—There is no doubt that the buyer understands that a cock and hen are intended; and what is more, every seller knows that such is understood if not expressed otherwise. Knowingly to sell two hens, or two cocks, as "A pair of Pigeons," without stating that they are each of the same sex, is fraudulent, and admits of no defence. No honourable man who has sold two of the same sex as "a pair," would decline either to take them back, or change one for a bird of the other sex.

LIGURIAN BEES (*Z. F. X.*).—Queens of this species *must* be placed at the head of stocks, or swarms, of ordinary bees—swarms would be best. Directions for performing this operation will shortly appear in THE COTTAGE GARDENER. Swarming must not be permitted till the following year, or the stock will be hybridised for want of drones. They need not be separated from the common bees till about to swarm next year, when isolation would certainly be advisable, although the German apiarists declare it not to be absolutely necessary.—A DEVONSHIRE BEE-KEEPER.

STEWARTON HIVES (*G. M.*, Lancaster).—We mentioned the death of Mr. Eaglesham many months since. We think any carpenter could make the hives.

WEEKLY CALENDAR.

Day of M th Week.	Day of Week.	MARCH 6—12, 1860.	WEATHER NEAR LONDON IN 1859.				Sun Rises.	Sun Sets.	Moon Rises and Sets.	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
6	Tu	<i>Chrysosplenium alternifolium.</i>	30.260—30.092	59—45	W.	—	36 af 6	47 af 5	54 5	14	11 23	66
7	W	<i>Chrysosplenium oppositifolium.</i>	29.823—29.652	63—38	S.W.	.06	33 6	49 5	rises	☺	11 8	67
8	Th	<i>Stellaria media.</i>	30.015—29.615	49—30	W.	.02	31 6	51 5	48 a 7	16	10 53	68
9	F	<i>Stellaria holostea.</i>	30.409—30.299	47—21	N.	—	29 6	52 5	17 9	17	10 37	69
10	S	<i>Oxalis acetosella.</i>	30.392—30.194	52—24	S.	—	27 6	54 5	46 10	18	10 22	70
11	SUN	3 SUNDAY IN LENT.	29.960—29.709	54—47	S.W.	.05	25 6	56 5	morn.	19	10 5	71
12	M	<i>Fagus sylvatica.</i>	29.702—29.654	57—49	S.W.	.01	22 6	58 5	12 0	20	9 49	72

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 48.3° and 32° respectively. The greatest heat, 68°, occurred on the 9th, in 1826; and the lowest cold, 7°, on the 10th, in 1847. During the period 152 days were fine, and on 79 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

As the boisterous gales and violent showers that frequently occur at this season, succeeded by intervals of mild weather and brilliant sunshine, are frequently difficult to deal with, constant attention is necessary that a free admission of air, when in a genial state, may be given, and the cold, cutting east or north-east winds excluded. Frequent watering will also be necessary, and fires to be dispensed with, or only used occasionally, merely to ward off the rigour of sharp nights. The plants in good health, and well rooted, to receive a liberal shift. All plants when shifted to be accommodated with a little extra heat and moisture in the atmosphere until they begin to make fresh roots, when they will require to be more freely exposed, to produce a sturdy, vigorous growth.

CAMELLIAS.—The plants that have finished flowering to be removed to a higher temperature, where a moist atmosphere is kept up by frequent syringings.

CINERARIAS.—Tie out the principal shoots of the most forward, to form handsome plants. Manure water of the temperature of the house to be given occasionally. The more backward to be shifted into larger pots as they may require them, and all to receive plenty of air, light, and room.

FUCHSIAS.—They require to be accommodated with a warm, moist temperature, both at top and bottom, and the free use of the syringe, to make them large pyramidal specimens.

PELARGONIUMS.—Attention to be paid to their training, to watering, and to the admission of air. Shift on young plants, and stop all that may be wanted for late blooming.

STOVE AND ORCHID-HOUSE.

Finish the shifting of all specimen plants in the stove as soon as possible. A brisk, growing, moist temperature to be kept up during the day, and to shut up early. They delight in a tan-bed where the bottom heat ranges from 70° to 80°.

ORCHIDS will now require a regular looking over. Those on blocks of wood with moss should have the moss renewed, and fresh turf to be supplied to those in pots in a growing state.

FORCING-HOUSES.

The general routine in these structures will comprise disbudding, tying-in advancing shoots, thinning the fruit, watering, syringing morning and evening, airing, and shutting up early with plenty of solar heat; and to be each and all attended to in good time to obtain satisfactory results.

CHERRIES.—Caution in the application of water is now necessary, as either too much or too little will cause the fruit to drop.

CUCUMBERS.—The heat of the beds, which will be found to decline rapidly during cold winds, should be kept up by fresh linings; and air to be given daily, to

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allow the superfluous moisture to escape, taking care to prevent the wind from entering the frames by placing a mat or canvass before the openings.

FIGS.—A free supply of water, with liquid manure occasionally, to be given to the most forward crop. Where there is the convenience, the trees in pots are generally placed in a pit of rotten leaves into which they root, and where they are allowed to remain until they have borne their crops and ripened their wood, when the roots are cut back to the pot. Trees planted out succeed best when confined in brick pits, where short-jointed fruitful wood is produced without root pruning, which is necessary when the roots are allowed to ramble without control.

MELONS.—This is a good time to ridge-out plants, as the sun will have a powerful and beneficial influence at the time when it will be most wanted to ripen off the fruit. Pot off young plants, and sow seed for a succession.

PINES.—Continue to keep up a regular and moist heat; to be supplied with soot or other manure water occasionally during the whole time they are swelling the fruit until they attain their full size; watering and syringing overhead should be withheld when they begin to change colour, to give flavour to the fruit. The succession-plants recently potted to be very moderately supplied with manure water, and in a very diluted state until their roots reach the sides of the pots.

STRAWBERRIES.—Introduce succession-plants under glass, according to the demand. Keep the atmosphere dry when the plants are in bloom and near the glass; admitting at all opportunities a good supply of fresh air without currents.

VINES.—Persevere in thinning the bunches, as it is a mistake to leave more on the Vine than it is likely to finish off to perfection. The borders to be examined that a gentle warmth may be maintained at the roots. When the Vines are planted inside, apply good soakings of manure water occasionally. Thin the shoots of the late Vines as soon as the bunches are perceptible.

WILLIAM KEANE.

SPRING PROPAGATION BY SEEDS, AND CUTTINGS.

THE circle of the sciences, What is it? A ring, or a hoop, or a what? I cannot tell the size of it, or the form of the sweep it must make in its movement. But did you ever hear of the circle of the plain and practical, which I have seen with my own eyes? and that circle is as familiar to my craft as their old pruning-gloves.

The part of the circle of the plain and practical which bears upon the subject of the present article, runs between Paris and London, on the free trade system, and has run "backwards and forwards," at more or less speed, for the last ten years, and yet it is generally ten years behind the other circle—the circle of the sciences. What I wrote about annuals and spring propagation from Shrubland Park a dozen years back was admitted into France free of duty; and ever since, the cream of THE COTTAGE GARDENER never needed a "Treaty" to let it into French

ports and presses. Whether it was on stove plants, or greenhouse plants, or on Cabbage plants, or Cucumbers, the circle went as easy as a child's hoop; and what I would hint at is, that some of my friends grumble at the slow-coach rate at which another, and a most particular friend of mine, gets the "drawback" off the French articles from *THE COTTAGE GARDENER* ten years after date, by mixing *their* old wines in *his* new bottles, and by selling it over *his* bar as new wine up to full forty degrees of alcoholic strength, as a make-believe in "recent" French discoveries. Now, as it appears as plain as proof wines that Plain and Practical will pay for their keep, and for translating them to foreign climes, and also for their passage and retranslation on to British soil, it stands equally clear that we can never be burdened with too many of that breed, or cross breed between plain and practical propagation.

The newest hit on that plan is an experiment, just concluded, at the Experimental Garden, with the seed of *Perilla Nankinensis*, that deep purple-leaved plant which every one is going to try this season along with variegated plants, and plants with white flowers, as the best harmony and contrast out of all the flower-garden plants we possess. At first they had some difficulty in getting up seeds of this plant, even at Kew and at the Crystal Palace, and like ourselves, as is always the way in such cases, the seeds and seedsmen were said to be at fault by these big gardeners. No wonder, therefore, that we in our ways get bad seeds by anticipation, and less to be doubted that scores fail in getting up the best seeds in the world through their lack of that plain and practical knowledge which the French so much admire in our garden writings.

Out of one packet of seeds of this *Perilla*, six pots were sown at the beginning of February, to be tried in three different ways, to see which way is the best, not only for this one kind, but for a great many other kinds of flower-garden seeds. Two pots were put into a two-light Cucumber-box on a common dung-bed, at from 65° to 80° of heat all through the month of February. The Cucumber plants were very young, and from the forcing gardens of Hampton Court, which the Messrs. Jackson, of Kingston, rent and manage. Two pots in a one-light box on a dung-bed also, which was kept, or tried to be kept, by linings up to 50°, and from that to 55°; but the dung heat never got over 50°. This box was for hardening off seedlings and struck cuttings from a hotter propagation-bed; and two pots of the same seeds, from the very same packet, were put into a one-light box, or one-light division at the end of one of the ranges of cold pits, which had no heat whatever during the month; but there are glazed ware pipes to heat that range from a furnace in very severe weather. Therefore, although the place was a cold pit or box, kept from frost by coverings, it was very dry, and dry ashes were put in, on the first of the month, on purpose for the more safety of very soft cuttings just struck in the 75° pit, and started in the 50° pit, and now landed in a perfectly dry, close place from 36° to 60°, or 70°, as it happened by the state of the weather. The two pots in the 50° place sprouted, so to speak, in eleven days, and the young seedlings came up as sober as Radishes on a south border. On the twenty-fifth day of the trial the seeds in the *cold, close, dry frame*—always remember, at this time of the year, a cold frame for young seedlings, and for newly-struck-off plants must be as dry as a bone, and be kept as close as a Wardian Case; it can never be too hot by sun heat, as in that case the glass must be shaded; therefore, I italicised the *cold, close, dry frame* on purpose, to be kept in remembrance, as the most essential thing one has to do with in the spring propagation.

In twenty-five days the seeds in the two pots in the close, cold, dry pit began to show up green sprouts, slow and sure, and on that day of the experiment, or the afternoon before I am writing, not a single blade has appeared

in the hot Cucumber-pit, where the average heat of the whole time might be about 70°.

Of course, this experiment was not on purpose for the one kind of seed: all kinds on hand had a trial of it, and the trial has convinced me of two things—the one that the best gardeners, and myself after them, having ruined ten thousand seeds by too much heat and hurry in the spring; and secondly, that the seedsmen have been ten thousand times too much ill-used in respect to the faults of our own fraternity. Take my word, and depend upon it, that nine kinds out of every ten kinds of flower-garden seeds which have been sown this spring, stand at this present moment in places that are from 10° to 30° too hot for them. Take *Lilium giganteum* as another illustration of the fact, for which I wish to open the eyes of the most wide-awakes amongst us—the fact of thousands of seeds failing in coming up by the application of too much heat. Mr. Cunningham, of Comely Bank Nursery, Edinburgh, was the hottest nurseryman that ever lived; kept his plants and propagation the hottest, I mean (I knew him well) and his grounds and houses in their best feather. He could no more touch *Lilium giganteum* than your humble servant, with all his heat, nor could his next door neighbour in the Botanic, nor the Messrs. Loddiges, Low, Knight, Lee, and Rollison, of London, for the space of twenty years to my own knowledge. They, and we, the fast and far-seeing of the gardeners, were on the same level as those who first tried their luck with the bronzy *Perilla*. "We could not fix it nohow," nor did we till despair threw down the seeds on the cold earth, and then and there they came up of themselves, so to speak. There, then, are an instance and a fair inference that the fact was wisely ordained for our use and benefit, by getting up our seeds and seedlings at one-half of the heat and cost, and, let me say it, one half of the self-imposed trouble of first-rate men of understanding.

There is an experiment recorded, I think in the first or second volume of *THE COTTAGE GARDENER*, or at least somewhere, of a wall-border I once covered with spare lights, with the earth no more than a foot from the glass, and a little air, on front and back day and night, for a trial for seedlings. Nine or ten kinds of some common ones were sown on that border in the usual way; and in the daytime I have known them to stand at from 110° to 120° by the meridian sun of an April day, and to fall to below 36° on the following night, and every one of them did capitally; but the extra day heat did not seem to push them to sprout earlier, or to draw up weakly in the smallest degree, owing to the constant current of cold fresh air day and night; but after they were fairly up, they grew away much faster than those on the same border, and not so covered with glass.

That shows, equally plain, that there is a strict limit to what I said just now about a close, cold, dry frame; and it is from a thorough knowledge of our plain and practical ways, I mean we gardeners, that an amateur can never be able to hit off plant-culture as we do. So that practice without the reason is like pork without salt—it will not keep long in the head, or on the hooks, because it is constantly involving itself in apparent contradictions. For what can be more contrary than to hear a man calling on you to keep the coldest place on your premises as close as a Wardian Case, and as dry as a bone, and yet goes on to speak of the great advantage of admitting air freely as in a windmill? It is, therefore, essential to know how that should be, and the three different frames or boxes which are now at work in the Experimental Garden will assist us in clearing up the point. In the hottest box, which is from 65° to 80°, all spring cuttings of whatever kind will root fast enough, and the seeds of all stove plants will vegetate there also; but it is too hot for many of the flower-garden seeds even to vegetate, as we have seen to be the case with *Lilium giganteum*, and this purple *Perilla*. Therefore, a cooler place is essential for such, and the box with only 50° for the average tempera-

ture is the right and proper place for all such. The dividing of a Waltonian Case into two compartments by a glass division answers the same purpose as the two boxes on a smaller scale. You keep one division up above 70°, for cuttings and for stove-plant seeds, and the other end as low as 50°, by the admission of so much air as will keep it down to that point; and the cold, dry, close frame, or a cold box with temporary glass covering, comes in to remove seedlings and rooted cuttings into as soon as they are ready, and the others are too hot for them.

All these removals must be kept close for a time, a short time, till they can gain sufficient firmness to enable them to endure fresh air, sun heat, and handling, without risk of flagging in the meantime; but, after the moment they acquire this degree of strength, it would not suit them at all to be kept in a close place; they would soon begin to spindle and get weak a second time, and this time from want of air, not by too much heat.

Usually gardeners manage their seedlings and cuttings in two departments only: a very hot place to get the one up and the other rooted, and the next place pretty warm and close, to inure them to stand finally in their cold pits and frames with air on and sun enough to keep them all going. Still there are the three necessary stages provided for in this detail. With a small greenhouse and a hotbed, the amateur contrives the same ends by a judicious use of his means. As soon as his raisings are fit to move from the hotbed, he takes them to the greenhouse, places the pots for the first week on the top of his flue near the farthest end of the house, and keeps the door or the sashes at that end closed, and calls it the warmest end of the house. Where there is no flue, he puts the pots down by the side of the front path for a while, and may be he fixes large sheets of newspapers between them and the side of the paths, or where most air could get at them; and, lastly, he ups with them on the front stage, and now they are able to take their share of what the greenhouse plants require, abundance of air and as much heat as the weather gives. Then the potting off depends on the room, and every available inch is occupied with newly potted off minimums. They, after that turn, must also be kept for a while away, as much as possible, from draughts and strong glimpses of the sun; but, by-and-by, they, too, come round, get hold of the new soil, and will be able to take their shares like the rest of the stock.

Now, it is in the completeness of the arrangements for these three first stages in the life of a plant, be it from a seed or from a cutting, that the whole secret of propagation depends. There are thousands of ways of getting at the second and third stages of the management besides this greenhouse way of the modest amateur; but the first way must embrace a smart heat by some means or other, and the three stages entail the necessity of shade and closeness; but after cuttings or seedlings can stand sun and air, they can never have too much of both under glass; but they may stand much longer in the same pots than many are aware of, if there is no room to allow their being potted singly, or in four and fives together in one pot, or so many in little patches all over a pot, as in the colonising system of potting off many very small things.

No mode of propagation or for rearing young stuff is so good as the old hotbed of dung, with linings and a safe covering at night, in the hands of practicals, be they gardeners or knowing amateurs, nor any plan which is so certain of destruction in the hands of those who do not understand the management thereof;—for this class the tank system of bottom heat with hot water is the only way they cannot go wrong, or, if they do, it is the easiest way of getting over the scrape.

The Waltonian system of propagation is nothing more or less than a complete, isolated, and portable "tank system" in minimum, and that is the whole secret in the success in working it. Any gardener who can work a

tank-house, or tank-hotbed in a propagation-house, would be able to tackle a Waltonian without having ever heard a word for or against it—he knows the elementaries of propagation, if there is such a word, and he has only to apply them; and for those who have yet to learn the elements themselves there is no hope till they master them; but now that simple contrivance is the best and easiest way of arriving at a fair average understanding of the mysteries of propagation. Never mind if you lose one-half of your first beginnings, nobody may hear of it; you will have no cause to change your name, like the man with the Boursault stocks or his Stoke Newington friend and failures—nothing of the kind; and know assuredly that a plant or bed of one's own raising is worth ten times the money spent by members of the peerage on acres of glass and first-class gardeners.

Well, there never was such a talk about gardening as there is just now; never such quantities of seeds in my time, and seldom was there so great a need of them. If you could see the many private letters which we receive about new seeds alone, you would be astonished how we could find time to read them all. Some, even in my house, look anxiously for the postman four times a-day; but I dread his knock—he overwhelms me each time with his benefits. But that is the way to keep gardening going. I always say the more writing about gardening the more fun, the more funds for all departments in the trade, and the more happy for those who can fly the soot of cities and take share in the general pleasure and innocent amusement of the garden.

To bring any of this to bear on the practice of the present season, let me caution all young gardeners against the common practice of raising seedlings, or attempting the plan of putting them in such heat as is requisite for their Cucumbers. A small, or rather a narrow one-light box—say a two-feet-six-inches-wide box, and of the stop and run as the Cucumber-frame, to be placed, as it were, on the *end linings* of a hotbed—such three-feet-wide linings as Mr. Fish mentioned last week would be just such a place as I should like to see thus tried, and could be tried at one end of a range of lights. The heat would not be much over 50°; and I am perfectly satisfied that nine-tenths of flower-garden seeds will vegetate as readily in that as in 70°, and the seedlings do with far less nursing.

There is no question, also, about many seeds doing badly in very strong heat, and some never come up if the heat is over 50°. All my seedling Geraniums, of which I have grown millions, do better from a heat of 50° in spring. The way I manage with all seeds in the spring is to sow them earlier than is usual, and to give them more time and less heat even out of doors; and in the hardest and latest season I have adopted that plan on principle; and I may say, without fear or flattery, that the system is the surest and most safe turn in the whole of gardening; and I repudiate entirely, as against my own practice and the evidence of my senses, the doctrine that cold is bad for seeds:—it is nothing of the kind; a seed never suffers from ordinary cold till it vegetates, and it never vegetates till the warmth necessary for sprouting arrives. I have Scarlet Runners now hanging on the old straw of last autumn. The pods were dangling in all the frost of the winter; and I should be justified from long experience to warrant every seed of them to grow just as freely as if they were housed at the proper time, and kept free as Potatoes from frost. But I would not recommend a practice founded on the fact that cold never yet hurt any of our common seeds. I merely adduce it to account for what some people might consider to be a great risk—to put valuable seeds to such slow work as 50°, when the usual plan is Cucumber heat and cutting heat for most early seeds. That slow work is the sure work, however; and *Perilla Nankinensis* is the last on the list of experiments which will prove the fact to the most inveterate believer in the hot haste and less progress

on the one hand, and the old coach proverb of frost and cold spoiling the germinating powers of the seeds of very tender plants.
D. BEATON.

AGAPANTHUS UMBELLATUS CULTURE — BROAD-LEAVED MYRTLES NOT FLOWERING.

I SHALL feel much obliged to you if you will tell me the proper treatment for *Agapanthus umbellatus*. I have two fine plants which flowered well the summer before last, but last summer did not bloom.

I have had a plant of the broad-leaved Myrtle for several years, but it has never flowered. They have all been in the greenhouse during the winter, and have been occasionally watered, and at present look healthy.—FLORA.

[The treatment of *Agapanthus umbellatus* is just the same as the treatment of a handsome pot Hydrangea from October to May, and from the beginning of May to the end of September half between a Hydrangea and a nice Balsam in a large pot. The soil to be exactly like the soil for a Balsam or a Grape Vine in a pot, or a Pine Apple in a Pine stove. The watering all the summer to be same as for a Hydrangea and a *Vallota purpurea*, and that means as soon as the summer is warm in earnest, to have a large saucer for water under *Agapanthus*, *Hydrangea*, and *Vallota*, and to keep the saucers brimful of water to the end of August, from October to May very little water indeed to any of the three, merely enough to keep them going.

As for Myrtles they are tiresome things in old pots, and the broad-leaved kinds more so than the rest. One might fancy it was never ordained they should be put into pots at all, because they make such lengthy roots which soon suck up all the goodness out of the soil, so that in three years an ordinary pot Myrtle will have sucked up the soil to starvation point, no more goodness is in it, and after that the strength and goodness to cause them to bloom, and to shine in the leaves, must be from liquid manure; but being old-fashioned they have a disliking to some of the new fancy ways of high feeding. Cowdung is what they like most in their water, not very strong, but to have it in moderation through the months of May, June, July, and August. In June and July our own broad-leaved pot Myrtles stand in saucers of water night and day, but having so much at their command we dock them of the muck-water allowance.]

ROOT ACTION.

THERE is something not yet understood with respect to the spongioles of fruit trees. That they are often ephemeral I can prove from my own experience, and not always from the mould in the pots becoming dry; for a friend has just told me that his trees in pots plunged lose them in the autumn. I have another case in point. I planted some Peach trees budded on Almond stocks in the border of my orchard-house; two of them were taken up after one season's growth; their roots were (to use my man's expression) "like wigs," so abundantly were they furnished with small fibres. The other trees growing in the same border were taken up at the end of the second season, the spongioles, or fibrous roots, had all disappeared, and only six or seven long Carrot-like roots were left, which had made their way deeply into the border.

Mr. Beaton does not appear to have had recent experience in the culture of trees. I hope he will go into it, and report progress.—A. Z.

SMALL GREENHOUSE BUILDING.*

AT the first sight I approved of all your contemplated alterations; but now I will give you the benefit of my second thoughts.

1. I regret that in front of such a conservatory as is to be, and between it and the grass lawn, there should be a walk to the kitchen from the stable-yard, even though it be slightly sunk; but I possess no data to enable me to judge whether that could be altered with advantage or not. The more sunk, however, it was, I should like it the better.

2. The curved line on one side, leading to the above walk in front of the conservatory from the stable-yard, I would make straight at right angles, so as to harmonise with the straight lines of the boundary-fence, the straight line of the mansion, and the straight line of the end of the conservatory. Just turn your curved line

into two joining at right angles, and you will convince yourself that the curved line is out of place there. Were there no particular reason to prevent it, the centre of that walk for the short distance from north to south at the east end of the proposed conservatory should range with the centre of the east-end window of the breakfast-room. This would leave space for a small border between the conservatory-end and the walk.

3. The taking of the walk through the centre of the grass-plot, opposite the west window in the breakfast-room, with a door in front of the conservatory, opposite the walk and window, will be a great improvement, as the sides of the walk may be rendered very ornamental. But in the first place, if there is no particular reason to the contrary, I would continue the walk straight in the large garden instead of bending it; and the sides of that, too, might be made ornamental, though not so fine as that on the lawn. And secondly, I would convert that window in the breakfast-room into a doorway; so that you could go from the breakfast-room into the conservatory and thence to the lawn without having to go out of doors first, or pass through the much smaller room, 9 feet by 11, in which you propose to have a doorway likewise into the conservatory, but chiefly for another purpose, which I do not think you will find a comfortable arrangement. I have no objection whatever to the doorway in this small room; but the pleasure from the conservatory will be greatly enhanced from being able to go at once from the breakfast-room into it, as such places are always most delightful in the morning. This glass door with care may just be as close as respects draughts, &c., as a window.

4. The doorway in the small room is chiefly for the purpose of removing the plants into it, when there is a likelihood of frost, and thus, I presume, escape the necessity of heating the conservatory; but I can offer few inducements to such a plan. First. Because if the plants are continued long in such a room, they will become unhealthy for want of light; and secondly, because in changeable weather the labour would be great, and a few hours' neglect would neutralise all the care and labour previously bestowed. I should greatly prefer heating the house at once from the kitchen boiler. If the boiler were lower than the floor of the conservatory, there would be no difficulty; if higher, in order to avoid pathways, the pipes should be chiefly under the back stage. But, supposing that there are reasons why the heat should not be taken from thence, there seems to be a nice space for a small stokehole at the west end of the conservatory, in front of the kitchen window; and supposing the floor were tiled, at least the pathway, I should take a small flue under the pathway, and back again, the middle wall doing for both flues. A small chimney there would be no great eyesore, if coke or clean cinders were used; but, if a chimney were objectionable, the flue might be continued to the scullery, or even the kitchen chimney. A very small quantity of fuel would keep the house safe, and the pathway being heated, it would always be agreeable to walk upon in the coldest days of winter.

To suit another correspondent also, I will describe how to make such flues, so as to have them safe and efficient; and, therefore, a little more costly than if made slighter. First settle what it would be desirable the level of the floor should be. Take out a trench 2½ feet wide and 10 or 12 inches deep, after the bottom is well rammed. This is where the flues are to be beneath the pathway. Above that rammed bottom place 2 or 3 inches of concrete, and on that place level as a bottom for the flue thin flat house tiles, for a width of 18 or 20 inches, or an inch or two wider if you like. Thin house-slate will do very well after you pass three or four feet from the furnace. If nearer, they would chip and crack with heat. The small furnace should be sunk so low that the grate-bars should be fully eighteen inches below the bottom of the flue. Then, to form a flue, run a row of bricks on bed down the centre, and a row more on the top of these, leaving about a foot at the farthest end. This is the middle wall that supports both places. Five inches from that, on the side next the front of the house, build a similar wall of two bricks on bed connected with the furnace, turn it at the open space at the extreme end, and come back five inches from the other side of the middle wall, the end of this return finishing in the chimney. The flues will thus be about six inches deep and five inches wide. I have supposed that you are going to use nine-inch paving-tiles for covering the flue. A layer of thin house-tiles should be laid across first, firmly bedded in mortar; then house-slate would do, when two yards or so from the furnace, not nearer. The paving-tiles should cross these joints, and be laid in nice soft mortar. Two nine-inch tiles meeting on the centre wall will cover in

* This is in answer to a correspondent "B."

both flues. For neatness, and also ultimate economy in heat, we prefer using two more tiles, one on each side, one side of these extra tiles resting on the bricks that form the sides of the flues, and the other side on earth or sand, rammed at the level of the floor. With the exception of the resting-points, the space beneath these extra tiles should be as hollow as possible, so that the heat that escapes from the sides of the flue may rise freely. Such a flue round the ends and front of such a house would be sufficient, especially if an inch or two wider; but I make a double flue in the present case, because it would not do to have anything like a chimney near the breakfast-room window. A two-foot pathway could be made by using two one-foot square tiles, and the flues might then be six inches wide. One flue of such width would be the cheapest and neatest mode of heating such small houses, where it was not convenient to take pipes from a kitchen boiler. The modes of doing the latter have frequently been referred to. Without something of this sort is done, I prophesy that the conservatory will be a disappointment. You would see lately how admirably a lady manages her small greenhouse.

Now, to the conservatory, or rather greenhouse, as the latter term is given to houses in which the plants are moveable. I have no objection at all to the width of eight feet. I leave you to settle the height, only I would stipulate that the height at the back wall should be two feet above the front wall plate. Let me say that the height of the front is 6 feet 3 inches, and back 8 feet 3 inches, adding three inches respectively, if you can rise that height without interfering with windows, &c., on that side of the mansion. The half of that height in front, at least, should be glass; it will be better if two thirds are glass. The front wall and end walls might, therefore, be 27 inches or 30 inches in height; the ends above that all glass and fixed; the end next the kitchen window being rough glass, so as not to be seen through, if deemed advisable, though the plants will not be a bit the worse though all the household have the pleasure of seeing them. Similar glass may be used for the other end and front, if privacy is an object; but I would prefer the front to be of crown glass. The ends being fixed, I would prefer the front to consist of four sashes moveable, one on the east side of the doorway, and three on the west side. Being hinged at the top to the wall plate and opened and shut at bottom by a short flat iron-bar pierced with holes an inch apart, these holes fitting an upright stud of iron fixed inside of the sill, so that a small quantity, or a good deal of air may be given as desirable. If four openings were left in the front wall furnished with slides, each—say 9 inches wide by 15 inches in length, the front lights also might all be fixed. The roof we would have all fixed. The strong sash-bars, 2 inches by 3 inches, being fixed to a stout ridge-board against the house at one end, and to the wall-plate at the other. These, if placed 12 or 15 inches apart will carry glass sixteen ounces to the foot. To avoid all trouble in shading, I would use for the roof Hartley's rough sheet. For top ventilating I would use four or five openings each of a length equal to a space between two bars, according as the width between the bars was fifteen inches or twelve inches. In each of these I would have a little sash of one square made to swing between these openings on pivots. For that length, therefore, I would screw on an additional one inch and a half to the top of the rafter, and on that I would hang the little ventilator. Of course, the top and the bottom ends would also require to be of the same height, and a groove cut in the latter would prevent any rain from lashing in. If the pivots are placed six or seven inches from the upper end of the ventilator, and a string fastened to the centre of the upper end, the pulling the string will open the ventilator, and fastening it will keep it open, and when set loose the extra weight at the lower end will cause it to shut of itself. The lead flushing will make all right at top.

Now for internal arrangement. Whether the windows in the breakfast-room and small room are turned into glass doorways or not, I would have a pathway in the plant-house opposite these and along the front, with a shelf or narrow stage all round next the glass, and at a level three inches or so below the base of the glass. Suppose that shelf was fifteen or eighteen inches wide, it would have a fine effect from either window; and suppose that the pathway was 2 feet 9 inches wide, you would have a platform or stage in the centre 4 feet wide, or 3 feet 9 inches by 10 feet, or 9 feet 6 inches in length. The front of this platform, if formed into a stage, should be about three or four inches higher than the front shelf. The width of that shelf, the width of the pathway, &c., must be a matter of convenience. If tallish plants are to be

grown, a level platform at the back would be the best, and it would be easy to raise particular plants on pots; but if it be desirable to grow nice bushy plants—say Geraniums, and of no great height, then it would be desirable to have three or four shelves one above each other. Even in that case the lower one should be about the same width as the front shelf, in order to look best from the breakfast-window. I regret it has taken so much space to say this, for I imagined I could have said it all in a few lines. In conclusion, I would urge the importance of keeping frost out by some means if you would enjoy the outlay for the plant-house. I would much sooner have an iron stove inside, with a pipe going out at the kitchen-window corner, than trust to safety by continually moving the plants. R. FISH.

TROPICAL-LOOKING GARDEN.

DOUBTLESS, many others as well as myself, have been charmed by your accounts of "tropical gardens" in summer; but the winter shelter of many is no better than my own, and, perhaps, answers to the following difficulties might be useful to many in my predicament. Would an assortment of southern-looking plants be suitable in the position I am thinking of placing them in? My garden contains a small terrace (with vases on the boundaries), on which the windows of the house look; beneath the terrace a wider lawn slopes rather steeply southwards, and at the foot is a slow stream, in some places twelve or sixteen feet wide, all in view of the windows. On the opposite side of the water there is a low, steep bank, in two places faced with rock-work, with Ferns interspersed (three fine plants of *Osmunda* among others), which bank faces northwards, of course, and here and there runs into level sward; beyond is a path, a few shrubs, and then a grass field. It is along the sides of this stream I think of placing the "tropical garden."

The only winter shelter I have consists of a light room in doors, and two cold Cucumber-frames; but these in this climate (a few miles south of the Bristol Channel) suffice to preserve the usual bedding plants, Geraniums, Verbenas, &c., and with the help of a hotbed in March, to raise tender annuals. Now, what can I grow of tropical-looking plants under these circumstances? I think the foreground of terrace garden and vases would suit with the southern-like plants behind?—CACTUS.

[These exotic plants will not do under your circumstances, nor even with a common greenhouse. You must rely on such seeds as Messrs. Carter & Co. advertise for that very purpose, and get them up in the hotbed; but you have a splendid place for them down next the water, not up about the terrace garden.]

DECAY OF THE YOUNG ROOTS OF FRUIT TREES.

My friend, D. Beaton, has written a very long article, and has brought out some "auld world tales" about potting experiments and potting lectures. I remember Mr. Mackay very well; he conducted the Clapton Nursery for Mr. Henchman, who first established it, and was superseded by Mr. Low. Now, I dare say Mackay would give a very pleasant *potting* lecture, for he was a lively "jolly" sort of fellow; but he was not the man to make many experiments, being too heavily engaged. I have no wish to enter into any controversy, and, above all things, I wish to avoid a waste of words, so I can only tell what I have seen, and what I fully believe.

I have seen the young roots of the preceding summer's growth on Peach trees, Apricots, Plums, Pears, Cherries, and Vines begin to decay *before* the leaves have changed colour, and while the earth was moist, early in October; I have seen this (*i.e.*, if I may believe the evidence of my senses) for seven consecutive years. I say this in reply to the following quotation (page 313) from my friend D. Beaton:—"A Fuchsia will keep its roots as fresh as new-laid eggs as long as you keep watering the pot; so will a Vine, a Peach, or any fruit tree whatever."

The last paragraph in our friend's article I fear I do not comprehend. Age certainly brings on dullness. I must again give a quotation:—"But roots, in well-conditioned soil, when made in the absence of leaves, never die, or not till the whole plant above them and older roots behind them perish." I fear I do not understand this sentence. I only know a fact that has for some years come under my notice. In a distant part of one of my nurseries, the substratum of which is a hard calcareous clay, Apple trees make a most luxuriant growth for a few years.

Now, if an Apple tree on a paradise stock be planted in this soil, and taken up after one year's growth, its root-stem is surrounded by a dense mass of fibrous roots; but if it be suffered to remain till the end of the third year undisturbed these fibrous roots are not to be found; the root-stem is bare of fibres, and three or four long fangs, going deeply into the soil, only are left. The tree is still vigorous, and so I have felt assured that these young, healthy feeding-roots, even when attached to a healthy tree, *do die*. I do not make an idle boast when I say that I have seen more roots of fruit trees than any physiologist or gardener that ever lived, and finding that no two of the former ever agreed, I adopted my practice of root-pruning and removing trees so as to force them to form new feeders when, either by death or removal of the old ones, they were required.

I like to discuss these matters with friend Donald, because he writes kindly and agreeably, and reminds one of old times when many physiological crotchets were discussed by men who wrote and talked fluently, but did not always practise cleverly and with energy.—T. R.

VENTILATING A SMALL GREENHOUSE— CINERARIA OFFSETS.

I HAVE a small "lean-to" greenhouse, facing east, roof and side-lights fixed, front sashes four feet square, opening. Should I, for ventilation, put small sashes on pivots in top of back wall, behind which is a sheltered lane?

Will the offsets from frost-killed Cinerarias, now growing in pots, bloom this year?—AN INEXPERIENCED AMATEUR.

[The ventilators in the back wall will make all right. Glass, as you propose, will be best. Wooden ones would do. In this number you will see a mode of putting ventilators in such a fixed roof, by having small one-square sashes made to swing on pivots between the sash-bars. We do not know what your back wall is, but either mode will do; and we do not think you will need the ventilators all the way, though if you commence, it will be as well to make all uniform. Even the afternoon sun through such glazed ventilators will be an assistance.

We have no doubt the Cinerarias will bloom if fairly grown, but they will be late, and the roots, when, in pots, are no great admirers of very hot weather. You may neutralise that, however, by keeping the pots cool when the hot weather comes.]

INARCHING VINES.

I PLANTED a new vinery in May, 1858, with eight Vines, four of them were to have been *Black Hamburgs*; but, to my great disappointment, I find them to be *Black Princes*, having fruited them last year, and I do not think it worth growing in such a small place as ours, and I have four *Black Hamburgs* to replace them.

Now, the information I want is, which would be the best; to inarch the *Black Hamburg* on the *Black Prince*, or to plant them by the side of them, and cut out the *Black Prince* as the *Hamburgs* come into bearing? I am aware inarching would bring fruit soonest, but would the *Hamburgs* be as productive on the *Prince* stocks as on their own roots? They have made very strong wood as yet, and are breaking very strong this spring.—A THREE YEARS' SUBSCRIBER.

[If you value the fruit, it would be as well to plant the *Hamburgs* by the side of the *Black Princes*. If you do not value the fruit, and to make doubly sure, you might plant the *Hamburgs*, train to a single shoot, rub off all the buds of the *Prince* except the lowest bud, and let that grow, and then, when firm enough, inarch the *Hamburg* and *Prince*, and cut off the top of the *Prince* when all taken right, and then you would have the roots of both to support the plants. You need not, however, be afraid to inarch in the common way, as you dislike the *Prince*.]

YELLOW PANSY FOR BEDDING.

ALTHOUGH I am keenly alive to the presumption of differing from Mr. Robson, yet feelings of gratitude prevent my acquiescing in the snow shower he has poured on the yellow Pansy. I saw it last year forming a line in a ribbon on *two sides* of a long walk, where, of course, it had to face two ways, and it was quite dazzling.

Another great advantage is the length of time you can have it in bloom. Old plants divided will come into bloom at the end of March, and go on till the middle or end of July *well*. And the cuttings you put down at this time, will then take their place, and go on till the end of the season.

I fear I cannot be very explicit about the yellow Marigold. I had seed several years ago from Vilmorin, Paris. It was perfection, there was not a trace of brown. The plants were very dwarf and compact not more than three or four inches high, the flowers mostly double; but some few plants had single flowers. The flowers about the size of a shilling *in great profusion*.

It must be a French variety, as the blossom is just like those of the French. I have tried repeatedly for it since, but have never had it true. A friend of mine, who does things on a much grander scale than I do, and who spares no expense, fully recognises the value of this Marigold, but like me cannot get it true. He last year took up and potted any plants that were of the right kind, and placed them in a greenhouse, in hopes that they would mature their seeds there. They will not do so in the open air here. If they come up with him, I will endeavour in the summer to send Mr. Robson a plant, that he may judge of them by inspection.

Is Carter's yellow *Tom Thumb* Nasturtium likely to be a good, compact bedder?—A SUBSCRIBER.

KEEPING A SMALL GREENHOUSE WARM.

My house stands high (500 feet above the sea), and open to the winds, particularly from north and north-west. The house is 13 feet by 8 feet, and span-roofed, and is all glass from 2 feet 6 inches above the ground, except on the east side, which is the gable end of a wash-house forming part of the garden-wall. The glass on the top is Hartley's Patent. It has only been by the most extreme care and watchfulness, that I have been able to keep the temperature above 40° at night, and only once has it been as low as 38°. It is heated by means of a brick flue (the bottom of which is six inches above the floor), from the fireplace in the wash-house, forming a semicircle, above which are the shelves for plants. The fireplace was originally a common grate. A boiler-grate has been substituted, with a thick metal plate as a cover; and by means of dampers the heat of the greenhouse-flue can be regulated at pleasure, the plate at the same time being heated sufficiently for cooking purposes if needed. I have found much greater difficulty in keeping up the heat on a night when a strong north or north-west wind prevailed, of which we have had numbers, than in the coldest frosts; but at all times the quantity of coal used is excessive, and I am inclined to think that the fact of the north side being glazed is the cause, by reason of the wind forcing its way through where the glass overlaps. With a view to a remedy I shall feel grateful if you will advise what had best be done:—whether to putty each overlap or joint of the glass, or what other method you would adopt? At the same time it must be borne in mind that coals are cheap, and possibly you may consider the free ventilation so caused beneficial and equivalent to the extra attention. If so, I shall not begrudge it.—AN AMATEUR.

[We presume your flue gets hot enough, as you say it can be regulated at pleasure; if not, we would incline to think that much of the heat above the fire escapes by the metal plate into the wash-house. It would not be the first time that the shed in which a furnace was placed got hotter than the house the furnace was placed there for. We have no doubt that if a chamber were formed over that plate, and two openings from it were in your house on the Polmaise principle, and you put your face against the upper opening, you would find that the heat did something more than warm the flue. The flues in such a span-roofed house would have told more if nearer to the glass. However, 38° were not bad in the worst weather we have had. It would, however, be advisable to putty the laps of the north side; for, if very open, the quantity of fuel you might require might dry the air of the house too much. We would, however, be inclined rather to run a covering of cloth or mats round that side as far as could be reached conveniently, and in severe weather water the floor near the flues, and place some evaporating-basins on the top of these. The laps will be all right in summer. You must keep in mind that your fire suits two purposes; and if coals are cheap you must not mind a little extra. You will see something of flue-heating economically; but in that case care is taken to get all the heat from the coal.]

GRAFTING LATE IN THE SPRING.

THE very judicious and practical remarks recently made by Mr. Robson in *THE COTTAGE GARDENER*, on the time for grafting fruit trees, are worthy of all acceptance, and should (living as Mr. Robson does, in the "garden of England," combined with his practical knowledge), put aside the "old idea, that grafting should be done in March." I can bear ocular demonstration to Mr. Robson's advice, having grafted some hundreds in the month of May, with scarcely a single failure, and I believe that the end of April and beginning of May are the best times for grafting Apples and Pears.

Will one of your able correspondents assign the reason why Pears thrive so luxuriantly on the Crab stock the first season after being grafted, making from four to five feet of wood, and die the second year?—J. PERKINS, *Thornham Hall, Suffolk*.

[We shall be obliged by any of our readers who have grafted Pears upon Crab stocks, stating the results of their experiments. We should like to know if root-grafting were tried; also the names of the varieties, and whether any continued vigorous longer than others.—Eds. C. G.]

THE LATE THOMAS NUTTALL.

MR. THOMAS NUTTALL was born at Settle, in Yorkshire, England, in 1784. His parents were what is termed in England respectable, but in moderate circumstances, and Nuttall received but the common rudiments of an English education. He was apprenticed to a printer, as a matter of his own choice, and so improved his time as to acquire a thorough knowledge of the Greek and Latin languages. In the pursuit of his calling he emigrated to the United States when at the age of twenty-two, and was employed for a time at his business in Philadelphia. He always had a taste for Natural History, and attended all lectures on scientific subjects; and, having obtained an introduction to Dr. Barton, the botanist, at the conclusion of one of his lectures, he was referred for further information to the celebrated William Bartram, and to the kindness and attention he received from him, whom he often refers to in his works as "his venerable friend," the world is indebted for the sealing of those scientific proclivities which have since made his name famous.

Perhaps the first "little thing" that induced his early attendance on these lectures, he many years after related to his friend Dr. Pickering. The morning after his arrival in Philadelphia, he took a walk beyond the Schuylkill, and seeing a *Smilax* climbing a tree, said to himself—"Egad! there's a Passion-Flower!" Returning, he inquired for a "Botany Book," and was told that a Dr. Barton had written one, but he could not find it at any of the stores, and so sought an introduction eventually to the Doctor himself. This was in 1808. From this time forward his progress in botanical science was very rapid, gathering his knowledge as he had done his past education, by his own efforts alone. His botanical trips were repeated and arduous, one of his earliest being to investigate thoroughly the Peninsula formed by the Delaware and the Chesapeake. As his knowledge of things "at home" became more perfect, he thirsted for more information, and boldly penetrated, usually alone, many hundreds of miles into the interior, making friends even of the most savage children of the forest. On one of these excursions, five hundred miles beyond the pale of civilisation, he was taken sick. Entirely alone, and after every remedy had failed, he composed himself to die. He was found by an Indian, who placed him in a canoe and rowed him down a river to the region of the white man. Mr. Nuttall seems to have been much attached to the Indian races. From his peculiar (to them) habits of gathering plants, he was called by them, "the pale-face medicine man," and throughout his whole works he seldom misses an opportunity to record his generous feelings towards them. Knowing their proclivities for whiskey, Mr. Nuttall used to supply himself with this novel pacificator for cases of emergency, but never employed it when any other agent would answer as well. Mr. Nuttall used often to say, to the amusement of his friends, that amongst the provoking annoyances that he would at times be subjected to, one was the drainage of his spirit bottles by some stealthy Indian, leaving his snakes and lizards dry!

The result of his trips and studies was, in 1818, the production of the "Genera of North American Plants," which at once placed him on a footing with the highest in the scientific world, and the work is still received as a standard authority. The cost

of these journeys, one of which extended to the Rocky Mountains, was borne by friends he had made in Philadelphia—generous friends of science; amongst whom may be mentioned L'Abbé Correa de Serra, to whom he dedicated this work; Zaccheus Collins, in whose memory he dedicated the "Collinsia;" Dr. Barton and Reuben Haines. During the preparation of his work, he spent nearly two years at the Academy of Natural Sciences in Philadelphia, studying and identifying his plants, often remaining up all night, and when tired lying down under the bones of the great Mastodon for repose.

One great characteristic of the man was his readiness to listen to suggestions from any quarter respecting his favourite science, and much of his success was, doubtless, owing to this modesty of his nature. At the suggestion of Dr. Darlington, he properly removed the genus *Obolaria* from the Linnæan class Didynamia to that of Tetrandria, after the same suggestion had been ineffectually made to other authors. He was in fact, emphatically, a listener. Though frequently an honoured guest at the fashionable Wistar and other Parties of Savans in Philadelphia, he had never anything to say, until "brought out;" but when once the ice of a first introduction was broken, he was very communicative and free with his observations and knowledge.

After he had finished his "Genera," he determined to explore the region of country watered by the Arkansas River, and on the 18th of October, 1818, started alone on his perilous trip. He went the whole distance from Lancaster to Pittsburg on foot, and taking a small skiff at the latter place, was joined by a young stranger, and the two went alone down the river, arriving at the mouth of the Arkansas, after many perils and hair-breadth escapes, on the 16th of January, 1819. He was a whole year employed in this trip, returning to New Orleans on the 18th of December, having a second time nearly lost his life by fever and disease. It was on this trip that he discovered the *Collinsia*, at Fort Lee; we believe also the *Maclura*, and many other things. For the means to prosecute this trip, in addition to the names before given, W. McClure (to whom he dedicated the "*Maclura*"), and John Vaughan, largely contributed.

The journal of his travels here was published in 1821, and filled with highly interesting matter; but, unfortunately, was a poor speculation to his printer, through the absence of all anecdote and lightness, which, contrary to the strong advice of his friends, he would not admit. This was one marked trait in his character. He hated everything that savoured of vanity or needless show, always aiming at the real and substantial. He was, however, well aware that such a course did not please the public, and often deplored that "he lived in an age that no longer tolerated the plain, unvarnished tale." He carried this habit of simplicity always with him. His dress, though always neat, was chosen with a view to service; sometimes on his journeys, made of leather, and fitted to his person; and, probably, in no event of his life did pecuniary considerations influence him. His income was mainly derived from lectures, given in Germantown and Philadelphia, and the private sale of his collections and specimens. Often his new plants would get into nurserymen's hands, who would allow him something for them. We remember particularly *Diplacus puniceus*, on which Mr. Buist gave him half the proceeds of the sale. His lectures were the means of inducing many young men to turn their attention to scientific pursuits; making handsome fortunes for some of them, by the knowledge gained. Indeed, one of our most prominent millionaires makes no secret of the influence which the example, assistance, and friendship of Mr. Nuttall, had in encouraging in him the study of the sciences of mineralogy and chemistry, from which his first success in life began.

Soon after the publication of his *Arkansas travels*, he was, in 1822, appointed Professor of Natural History at Cambridge, Massachusetts.

While in Boston he engaged closely in the study of other branches of natural history; and in 1827 his "Introduction to Systematic and Physiological Botany" appeared, and in 1832 his well-known work in ornithology. He obtained much popularity at Cambridge as a lecturer on botany and materia medica, and did much towards diffusing amongst apothecaries a knowledge of the drugs they dealt in; many of which he showed were obtained from other plants than they were popularly supposed to be.

He never, however, felt at home in his professorship; his active mind yearned for sterner occupations in the field of nature,

and he used to describe himself to his friends as merely "vegetating," and "doing nothing for science."

In 1833 he came again to Philadelphia, determined, as he said, to resign his professorship, as the College authorities would not grant him leave of absence, and he then made arrangements for his great journey to the Pacific Coast. He wrote to the Governor of the Hudson Bay Company for protection and hospitality in case he should visit any of their posts, but received a very unsatisfactory reply, which Nuttall said was not much more than he expected, as the subordinates, in such cases, he had always found, to sympathise with his objects more than the officials.

The owners of the vessel that brought him home from the Pacific, Messrs. Sturgis and Bryant, of Boston, to their honour be it said, would not take a cent of passage-money from him, "as," said they, "you travel for the benefit of mankind."

In Danas' "Two Years Before the Mast," an amusing anecdote is told of Nuttall on this voyage, who wanted the Captain to put him ashore at Cape Horn, during a violent storm, that he might study the plants of the Cape. On this expedition he was accompanied by Thomas Say, the celebrated entomologist, and twenty others interested in various departments of science, and it was perhaps the most valuable one for American interests ever undertaken.

On his return, he at once commenced on his additions to Michaux's "Sylva," bringing up the three volumes of that splendidly illustrated work on American trees to six, and before the work was scarcely completed, in 1842, he was recalled to England by the death of his uncle, who bequeathed him his property, worth only about 5000 dollars; and who, out of good feeling for his nephew, as he thought, fearing that in some of his dangerous journeys he would come to an untimely end, hampered the legacy with the condition that he should reside for nine months in each year in England. Poor Nuttall! his heart and soul were in the noble forests and boundless prairies of this country, and with the kind friends he had found here; and he could not but feel his uncle's condition a cruel one. But he had no choice. Relying on his bequest years before, he had sacrificed all his means to science; and having nothing laid by for the future, he had to acquiesce.

In 1852, he got the idea that by taking the last three months in one year and the first three in the next, he might still enjoy the society of his friends here again, and so he tempted the waters of the Atlantic once more, and when he again found himself at his old haunts at the Academy, he could with difficulty bring his mind to tear himself away from them. Even during this short time he made some important discoveries in the structure of the anthers of the Mistletoe, never before noticed.

Since then, Mr. Nuttall has lived on this small estate at Rainhill, in England; devoting, as is well known to horticulturists, his time to experimenting on flowers, and especially with the Rhododendron; an accident connected with his favourite pursuit, indeed in some measure hastening his death. Mr. Nuttall's sister was married to a Mr. Booth, who soon afterwards was drowned in the Irish Channel. The only child from this union Mr. Nuttall had adopted and treated as his own; and the scientific spirit of his uncle has fallen on him. He has been, for some years past, exploring the mountains of the East Indies, and many new and valuable plants have been the result. The Rhododendrons from the Himalayas in particular, were Mr. Nuttall's favourites. Late last fall, Mr. Nuttall's gardener became insane and had to be suddenly removed, and just about that time a case of plants arrived from Mr. Booth. In his anxiety to open the case, he unfortunately overstrained himself, and from the time of his injury gradually sunk—he died, aged 75.

Mr. Nuttall's attachment to America was particularly strong. Though so near the continent of Europe, he never visited it; and beyond a single trip to Ireland, never left England after his last visit to the United States.—(*American Gardener's Monthly*.)

SUBSTITUTE FOR THE YELLOW CALCEOLARIA.

IN reply to Mr. Robson's inquiries, which Marigold has been used for the above purpose, I have not seen any but the French variety applied, as an orange or yellow bed. There is a very dwarf orange sort, grows about six or eight inches high, on light, dry soils, and if obtained true comes true from seed. It requires to be planted very thickly, and then makes an even mass of colour, from soon after planting until cut down by frost.

I saw it at Hampton Court, last summer, and although very dwarf from the dry weather, it was full of flower, while the Calceolarias had not made a start. If my information is of service, I will give more particulars, as I grew it for several years in a former situation.—J. TAPLIN, *Teddesley Park*.

[We shall be very much obliged by a detail of your time of sowing and mode of managing and planting this Marigold, as a substitute for the Calceolaria.—EDS. C. G.]

THE APRICOT.

It is a notorious fact that there is more anxiety amongst gardeners about this most useful, I had almost said wonderful, fruit, than about any other. And, why? because it possesses such peculiar characteristics, such valuable properties as to domestic economy. But, then, after all, it must be admitted that it is a somewhat ticklish subject in our northern climes; and, no marvel, when we consider the parts of the world most congenial to its habits. If the hottest quarters of the eastern world cannot produce a real English Cauliflower in perfection, why should we expect to produce first-rate Apricots which come from thence? But in this case, skill, practical, yet formed on, or consonant with, true science, fills up that great blank which must otherwise in many cases present itself.

One thing has somewhat surprised me, but, perhaps, I am short of a multiplicity of facts. We do not hear so much talk of Apricots from the warmer States of America as of Peaches. Of the latter, we have been well told that they feed their hogs occasionally on them; but who ever heard of hogs being fed on Apricots? But, after these introductory remarks, my purpose is to again examine this "vexed question," and to endeavour to add a little more light—albeit, but a farthing rushlight.

Now, in order to give it fair play, let me admit that Apricots do gloriously in some places, and some localities, whilst in other places, yea districts, they are a gambling speculation. The stock has been blamed; but in the cases above alluded to, they are all on the same stock, the successful and the unsuccessful. So, then, it is not first-rate philosophy to lay all on the stock.

Soil it cannot be, for we find them succeeding where other circumstances suit, on dark soils, yellow, or red. And not only as a matter of colour, but in various textures: light soils, soils full of humus, and on adhesive loams. Therefore, it is plain the matter deserves and requires a more thorough investigation than it has hitherto received; and the best way to come to truth and facts is, to keep questions open until a thorough solution is offered.

When we look about country places and find lean-looking trees bearing abundantly against cottage or farmhouse-fronts, we may well secretly draw a comparison between them and the grosser trees of the kitchen gardens, which certainly on the average do not produce so abundantly, or so regularly as the others. About this part of the country (Cheshire), if any one builds a new farmhouse, or a new cottage, the first consideration is, where to plant the Apricot. I have been consulted scores of times since I came here, as to whether such or such a situation would do for an Apricot? Of course, it is always south or nearly so, and in nine cases out of every ten there is a stone pavement over the roots. There is no top dressing, and seldom a drop of water; and as for trimming away spray, why there is none to cut away. Almost every twig they produce is wanted.

But, look at the young Apricots of the kitchen garden, they, in general, require much waiting on. Disbudding, pinching-back, &c., are certain processes here. The fact is, the borders of kitchen gardens are in all cases in an artificial state, as compared with these primitive soils, which in general compose the soil of the Apricot.

There is, no doubt, but heat is the great essential in their culture, and next to that, light. In nearly every case as to cottages, &c., there is a fire in the very room against the walls of which the Apricots are trained. And a fire in such little rooms as we find in such houses, must cause the walls to be tolerably warm at all times. But, then there is the root action, the action of the sun upon the stones as compared with soil. This is, I am assured, considerable, and of much importance. I question much if the soil beneath such pavements on sunny frontages, loses its ground warmth during winter, so much as exposed soil. Now, this pavement heat appears to me a most important affair, whether it be a reflection of light, or the greater radiation of heat, or both combined; of the latter there is no doubt I think. Now,

admitting that there are facts in these things, it is easy to see that two great purposes as regards the Apricot will be effected, the wood will be firmer ripened in the end of summer, and the blossoms will have the climate about them ameliorated in spring. The Apricot demands an intensity of light, and that of a continuous character whilst the growth is being made, and abundance of heat is equally essential.

To this end it is absolutely necessary to keep under all loose spray; and the best way to accomplish this is to pinch all such shoots back to about three eyes, and this during the month of June running into July. In former days total disbudding was the practice with many, but I have proved that little disbudding indeed is necessary with the Apricot—certainly a few very gross breast-shoots will put forth occasionally; and such as do so up to the middle of June may be pulled clear away, but after that I say simply pinch back. It will be found that from such practice not only will blossom-buds be frequently developed, but what is of more importance still—natural spurs, the basis of years' blossoming. Besides: the true natural spurs, which are of real value, and which, when the tree is smothered or shaded with spray, are reduced to a minimum in point of power and future usefulness—by causing the sun fairly to shine on these spurs and the air freely to circulate about them, they attain their full power, and these are the blossoms that will set.

It, no doubt, has been noticed by many that the Apricot makes a more sudden cessation of growth about the middle of September than many of our other fruit trees; the young growth ceases, and the foliage begins to show signs of discolouration. So we may see that since they commence making wood somewhat late—say towards the end of May, that their vegetative and elaborating period is compressed in a rather narrow compass; and this points to the propriety of doing what we can while the vessel is in full sail—some skilful, prompt, and decisive navigation. There is always a good deal of lamentation and woe about the Apricot blossoms in April, about their bad setting, &c.; but if people would examine the blossoms of trees notorious for poor crops, they would be surprised to see the quantity of barren blossoms. And why barren? If those blossoms be looked carefully into, it will be discovered that many are deficient in the pistil, or female portion of the flower: instead of its being bold and elongated; it will shrink pitifully in its socket; whilst the poor males, or stamens, will look half ashamed. Now who can expect flowers so imperfectly organised to set? This may be seen frequently in Peach blossoms, aye, and Plums, &c.; and it is merely for want of a close examination of the flower that such misconceptions exist. People are dazzled at first sight by fine white flowers; but such should learn that very frequently the corolla, or flower, may appear quite perfect, whilst the interior organs are most imperfect. And what is this owing to but bad elaboration during the growing season? Why, the robbery and shading of breast-wood; for when the tree is too full of spray, the embryo buds that wish to be blossoms are as much shaded as though in a wood. It is, I think, during July principally that the fate of the next year's blossom is decided.

Let me now advert to the matter of retardation of the blossoming period. We all know that the Apricot blossom is excitable betimes in the spring; and that there is sometimes in sunny days during March a great and sudden accumulation of heat on a south wall. This is in one sense unnatural; for Nature does not build walls, and such trees in a state of nature undergo the influence of a free circulation of air, which prevents very sudden accumulations of heat. Now this hasty excitement has a damaging effect on well-ripened buds; but to those not over-complete in their organisation it is frequently fatal. There can be no doubt, therefore, that under these circumstances a slight shading when the buds first begin to swell is beneficial: it gives the various parts of the flower time to fairly develop themselves, which they cannot do when hurried. We may find by looking carefully into blossoms of this character that there is an unfolding process to be performed which must have a given time, and that if hurried beyond a certain pitch is sure to prove detrimental. I have found that judicious shading—only during bright suns—will allow the blossom-buds a fortnight more time to enlarge and unfold; but it must be observed by those who practise this that the use and the abuse of shades of this kind are to be distinguished. In all retarding cases my only object is to ward off intense sunshine; at the same time removing the shade on each occasion when the sun does not shine, for the trees cannot have too much access of cold air and winds as long as the thermometer is not below 27° under a retarding process.

But let the readers of THE COTTAGE GARDENER be assured that any inattention in this respect will be damaging; no coddling will do—better not meddle with them. In my opinion they should be planted in soils plain but of a generous character, and that they should annually receive a slight dressing of any old hotbed material. The spade and fork must be unknown over their roots; none of their operations, either, to within six feet of the stem. Indeed this constant tampering with their roots through cropping is a source of much damage, as it is in most trees. And as for an annual surface dressing—why, if we can dress annually for a patch of Cabbages, surely the Apricot is equally worthy. But still we must constantly remember that they must have heat and light. They have no objection to the back of a chimney facing the south.

R. ERRINGTON.

NOTES ON NICARAGUA.

YUCCAS AND CACTUSES.—On the other side of the ridge near Jinotépet a hilly country extends, in which the scenery is agreeably varied. Here and there a hut with a small plantation of Bananas is seen in the woods. I passed the village of Diriá, where I saw for the first time the columnar Cactus, and a species of Yucca, of high tree-like growth, which the inhabitants call Espadillo, while to the columnar Cactus they give the name of Organo. Both plants belong to the drier and more western region of Nicaragua, to which they communicate something of the character of the Mexican table-land. This kind of Cactus is planted in some villages for enclosures of gardens and courtyards, to which such a fence affords the most effective protection. It may be called a living vegetable wall, which has no fault, but that it grows too high if allowed to do so; the columns frequently reaching fifteen or twenty feet. Nothing is more easy than to plant such a fence. Old trunks are divided into stumps of a certain length, and these, taking care not to invert them by mistake, are placed side by side vertically in the ground, where they soon begin to strike root and thrive. In the more eastern, the lower and moister regions of the country, the Piñuela—a kind of Bromelia or wild Pine Apple—is used for fences.

WILD POULTRY.—I left Pueblo Nuevo early in the morning. The streets of this village, which is a place of some consideration, are between rows of the columnar Cactus or Organo, the houses standing back in the courtyards formed by these natural walls. The first part of the road from hence to Leon leads again through the woods. The sun had not yet risen when I entered them; and in all directions I heard the call of the chachalagua, a kind of wild chicken or pheasant, common throughout the hot regions of Central America and Mexico. I could never succeed in shooting this bird, of which I was told in Honduras that it crosses with the tame chicken, producing hybrids of which the males are highly valued as fighting cocks.

JICARA OR CALABASH TREE.—From Rivas to San Juan del Sur the traveller has to follow a road which, after having reached the shore of the Pacific, leads along it into the State of Costarica. With the exception of a few cattle-farms situated in the woods, the country in this direction may be called a wilderness, exhibiting nature, however, in great variety. Here I saw for the first time what is called a Jicaral, or tract of land overgrown by Jicara trees. It is quite a characteristic feature in the country, and must be described in a few words. The tree is the *Crescentia Cujete*, or Calabash-tree, well known by the use which is made of the hard shell of its fruit in manufacturing vessels for domestic purposes. The drinking cups, constructed from a smaller species of an oval form, are called jícaras; while the bowls or basins, prepared from a large variety of a compressed sub-globular shape, sometimes of as much as one foot in diameter, are named guacales. For the purpose of manufacturing these vessels the tree is cultivated. Here, however, I am speaking of the wild tree, which bears fruits of the size of a large Orange. The tree is small, with a great number of long, thin, worm-shaped branches, covered all along with small and very poor leaves of their own, but bearing an additional vegetation of parasitic Bromeliaceæ, in tufts of stiff leaves striped red and green, in parrot-like colours, so that a superficial observer may believe these tufts to be the flowers of the tree. To form an idea of a Jicaral, a number of these trees must be imagined scattered over a horizontal portion of the country, the soil of which consists of a black, stiff clay, and which is so situated as to become overflowed in the rainy season, when the entire district is transformed into a marsh. During the dry

season the soil becomes nearly as hard as a stone, and cracked in all directions, so that it is sometimes exceedingly rough, and with its dark colour appears almost like a field of larva. Between the trees some tufts of a coarse kind of grass, and bushes of the aroma Mimosa, with the sweet-scented yellow Catkins, are scattered. The ground under the trees is strewn with the fruits, which are eagerly sought and eaten by the cattle, the succulent pulp allaying at the same time their hunger and thirst. But the skeletons of cows, horses, and mules lying about form an essential feature of a more extended Jicaral, as a considerable number of these animals die in these localities from want of food and water during the dry season.

POINCIANA PULCHERRIMA.—The splendid *Poinciana pulcherrima*, in a yellow and scarlet variety, forms a thicket of shrubbery on this elevation near Omoa. This beautiful plant, called *Malinche* in Nicaragua, bears the name of *Guacamayo* in Honduras. Both names have a historical, and, it may be said, a poetical interest; the former being the name of the Indian mistress of Hernando Cortéz, while the latter is originally that given to the large red parrot, called Ara and Lapa, in other parts of South and Central America—a bird which, with the Maya Indians of Yucatan, seems to have been sacred, and dedicated to the sun.

GIGANTIC COLUMNAR CACTUS.—In the lower part of the valley of Santa Cruz, the gigantic columnar Cactus (*Cereus giganteus*) is first seen upon the road. The inhabitants of the country call it Saguaro; but various authors, and recently Bartlett, have applied the name of Pitaya (Pita-haya) to this remarkable plant. This name, however, belongs to another species of Cactus, of a similar but much lower growth. The latter also appears not to be found so far north, but occurs frequently further down in Sonora. I have obtained my information respecting the difference of these two species of Cactus from a good authority—the chief of the Pimas—who told me decidedly that the Cactus-shafts in that part were not Pitayas, but Saguaros. The Saguaro presents a thick fluted column, the size of a man's body, and thirty, forty, and even fifty, feet high, with sometimes three or four branches at its top, the whole looking like a gigantic candelabrum. The fig-shaped edible fruit grows at the edge on the top of the columns; and from the great height of the latter it would be difficult to get at them, did not this remarkable plant itself afford the means of reaching it. The old stems, when decayed, split into a number of thin poles, standing in a circle, the height of the entire column enveloped in a loose network; and by the aid of these the traveller is enabled to knock down the fruit. I have been told that these poles form an article of export from the port of Guaymas, and in Europe are made into walking-sticks, and sold under the name of "Spanish canes." I cannot, however, vouch for the correctness of this account. The Pimas at the old Mission of San Xavier del Bac had a large store of Saguaro fruit, which is used as food in various ways. It is eaten fresh; the sap is boiled to a syrup, known throughout Sonora by the name of "Miel de Saguaro;" and a flour is prepared of the cleaned and dried seeds, which have some resemblance in appearance and taste to Poppy-seeds, and are contained in the fruit in great quantities. This flour is made partly into bread and partly into a chocolate-like drink, called Atole. The fruit of the Pitaya is said to be far better than that of the Saguaro. Both are of great importance to the population of Sonora. In some bad harvests, occasioned by the want of rain, shortly before my journey through this state, a large portion of the inhabitants were obliged to live on these and other wild Cactus fruits.—(*Froebel's Central America.*)

THE WARS OF THE ROSES.

THE very sensible letter of Mr. W. P. Ruddock, page 313, will doubtless give rise to comment in other quarters, as the question is one in which public opinion is much divided; and whether it be ultimately decided that the Manetti or Dog Rose be awarded the highest honours in the class of this "the queen of flowers," or they be both discarded in favour of something else, remains yet to be seen. One thing seems likely—that peace will not be proclaimed until victory decides in favour of one or the other. Mr. Ruddock's able advocacy of the Manetti stock will doubtless be backed by some of our Hertfordshire friends, who are supposed to know more about Roses than any one else. But even in that famed Rose-growing county opinions differ on the relative merits of the stocks they are worked upon, that the cause must be taken up elsewhere, in order to give the combatants

due encouragement as well as fair play in the struggle, the appearance of a neutral now and then being also allowed. To this latter class I purpose to ally myself; or, it may be, I may be accused of trying to make a party of my own. This, however, I disclaim so far as anything new is concerned; for the individual I claim a place for had one before either the Manetti or Dog Rose was introduced into gardens, and like many other good old customs, it is very likely to outlive these intruders.

To become more practical, I may relate a circumstance that came under my own notice last year with reference to Roses: which, though it did not alter my opinion in the matter to any extent, certainly confirmed what I had previously arrived years before—which was simply this, that in all cases when practicable, Roses are better on their own bottoms than on any kind of stock whatever. This is strong language, and is likely to be found fault with; but I will detail one or two experiments which with me carry more weight with them than whole pages of letterpress, however ably written, and the cases being under my own eye, I had every opportunity to witness the result.

In the autumn of 1858 I planted two beds of standard and dwarf Roses of different sizes, which had been worked the tallest on the Dog Rose and the dwarfs on the Manetti. The ground was fresh; in fact, it was a spot where some recent alterations had raised it from four to six feet higher than it had previously been—the material, though not all such good top spit soil as would satisfy the fastidious plant-grower for the potting-bench; it was, nevertheless, not amiss. These plants, about 150 in number, consisted of most of the popular kinds of Hybrid Perpetuals—as *Auguste Mie*, *Géant des Batailles*, *Caroline Sansal*, *William Jessie*, and others of more recent date, were all planted in November; and I expected they would have done some service last summer, but they flowered very indifferently, made little progress in growth, and three or four of them died. I do not deny feeling disappointed; but I will detail my next experiment, which is on the other side of the question.

In January, 1859, I bought 200 dwarf Hybrid Perpetuals that had been struck as cuttings, many of them at the time I got them having very little roots at all; but circumstances prevented my attending to them until the end of March, or it might be April, when some beds were got ready for them and they were planted out. They having been merely laid in the ground rather thickly for the long period just mentioned, so that everybody predicted a failure; and certainly many of them looked so withered and bad, that I had not much hopes myself. But we lost very few, and the bulk of them grew luxuriantly and flowered in due time, the blooms being much finer than the same kinds on worked stocks. *Baronne Prevost*, *Alexandrine Bechnetoff*, *Jules Margottin*, *Baronne Haliez*, and others being remarkably good, and that without any extra assistance, as they never received a drop of water except in a natural way all the season, and a little leaf mould only was dug into the bed at the time of planting. Now I need hardly say that this strong case, added to others, less decisive, perhaps, in their results, that I had witnessed in years gone by, confirmed my previously-arrived-at conclusion—that no roots were so good as their own for out-door work, where, of course, the Rose is most at home, and where its beauties are most legitimately admired.

In saying this much on Roses rooting on their own bottoms, I by no means deny the utility of stocks for the quick propagation of species, as the example of our worthy correspondent, Mr. Ruddock, so fully explains; and so long as the buyers of Roses insist on having new ones, the nurserymen must adopt the working system (as budding is called), to supply the demand. But there are some well established good kinds, which it would not be difficult to propagate from in sufficient quantity to meet the public demand, that I hope to hear of more Rose-growers turning their attention this way than they have hitherto done. And do not let us hear complaints of the shoots of Manetti being mistaken for that of the variety worked upon it, which mistake more often occurs than many are aware of. Neither shall we be annoyed by the perverse suckers which rise up from the roots of a Dog Rose; and if our beds or Rose-plots do require renewing with a little good material, there is the consolation that when the plants are on their own bottoms the waste by the sucker and side-shoot system above alluded to will be avoided. True, it will be more difficult to obtain standards three feet high and upwards of many of the kinds; but I cannot see any beauty in a standard Rose when growing in a bed. On turf, when it is placed to give effect to some particular design, it is more admissible; but a bed of dwarfs arranged so as to have the strong-growing ones in the

centre is more becoming than the naked stems of the so-called standards.

But I do not deny all merit to worked Roses; for it is possible there may be some cases in which they are more serviceable than when on their own roots. For forcing purposes I have found them do better on the Manetti stock than without it. I do not wish to crush this hitherto-popular supporter of the Rose entirely, and possibly there may be some isolated cases where it does better than with me, and, in fact, where it does better than the unworked Rose; but in a great majority of cases I think a return to the natural system might be advantageously adopted. And I for one will advocate it, reserving to myself the right, as aforesaid, of using a worked plant for forcing purposes; or where, like Mr. Ruddock, propagation in a more rapid way is necessary. The budding-knife with its accompaniments may be still put in requisition; but I am anxious to hear the opinion of our Hertfordshire friends, based, as I trust it will be, on their individual practice; as without that the subject cannot well be settled, and the subject is well worthy of being thoroughly ventilated.—J. ROBSON.

SHADING GREENHOUSES.

M. BOUTIN, in the last number of *La Revue Horticole* recommends common tallow for this purpose. It should be slightly heated in an earthen vessel, and applied with a cotton rag to the glass when in an unctuous state, neither cold nor warm. We apprehend that, on a very hot summer day, the tallow would become fluid, and drip down on the plants. Perhaps spermaceti or stearine might answer better. Some of our nurserymen who do not care for appearances, have used for this purpose plastering laths nailed on the upper side of the rafters above the sash, leaving openings of about an inch between the laths. One advantage about this mode of shading is that it answers even when the sash is lowered. Where neatness is desired, nothing looks so well, and is at the same time so efficient and durable as sugar of lead ground in oil. It can be procured at almost any colour-shop, and resembles white lead. It should be greatly diluted with spirits of turpentine, and put on very thin with a brush. In putting it on, the brush should be kept very dry, and but little of the material should be used; in this way it is more evenly distributed over the glass. This is the material used by painters to produce the effect of ground glass.—(*American Gardener's Monthly*.)

THE FRUITS AND FRUIT TREES OF GREAT BRITAIN.

(Continued from page 318.)

NO. XXVII.—FLEMISH BEAUTY PEAR.

SYNONYMES.—*Belle de Flandres*; *Bergamotte de Flandres*; *Beurré de Bois*; *Beurré de Bourgogne*; *Beurré Davy*; *Beurré Davis*; *Beurré d'Elberg*; *Beurré Foidard*; *Beurré St. Amour*; *Beurré Spence*; *Boss Père*; *Bosc Sire*; *Bouche Nouvelle*; *Brilliant*; *Feodale*; *Fondante des Bois*; *Gagnée à Heuze*; *Impératrice des Bois*; *Tougaard*.

This is one of the varieties which has been thought to be the *Beurré Spence* of Van Mons, and which he considered the most delicious pear known. Many efforts have been made by pomologists to discover what the *Beurré Spence* really was, but no satisfactory conclusion has yet been arrived at; there is every reason, however, to believe that the *Flemish Beauty* was the variety intended, and it fully agrees with the character that Van Mons has given of *Beurré Spence*. As a dessert pear, the *Flemish Beauty* is one of the best as regards texture and flavour, but it is apt to become mealy, and early to decay at the core when too highly ripened on the tree. It should, therefore, be gathered before, or just as, it begins to assume its yellow hue, and be allowed to ripen thoroughly in the fruit-room.

The fruit is rather large, being three inches high and over two inches and a half wide; of an obovate shape, rounded towards the eye, and tapering to the stalk, where it is rather blunt.

A first-rate dessert pear, ripe in the beginning of October.

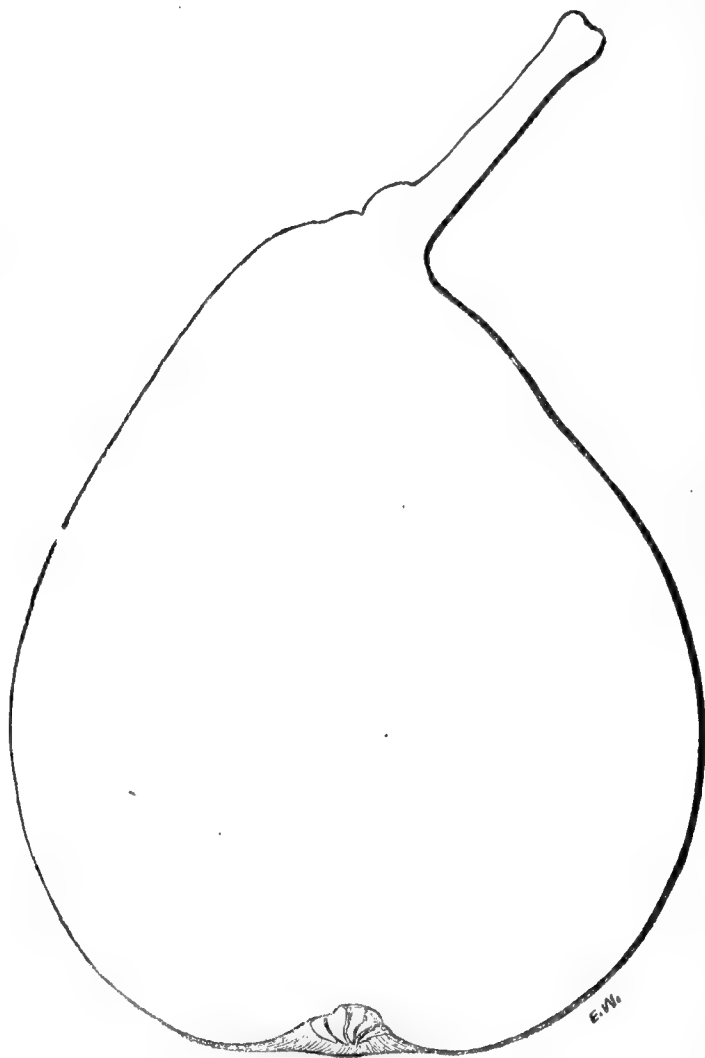
Skin at first of a pale grass-green, but changing as it ripens to lemon-yellow here and there, clouded with green over the

whole surface, and marked with patches of thin, smooth, yellowish-brown russet;—in some specimens there is a slight tinge of dull red on the side next the sun.

Eye small and open, with narrow, erect, subulate segments, which are incurved at the points, and set in a shallow basin.

Stalk an inch long, generally in a line with the axis of the fruit, and placed in a narrow sheathing cavity; but sometimes obliquely inserted with a fleshy swelling on one side of it, as represented in the figure.

Flesh white, very tender, fine-grained, buttery and melting, with an abundance of rich, sugary, and aromatic juice.



NEW OR RARE GREENHOUSE PLANTS.

(Continued from page 318.)

GAZANIA SPLENDENS, (Splendid Gazania).—Though this is a suitable plant for a low shelf or bracket in the greenhouse, there is little doubt but its great use will be for the flower garden. The leaves are long, and white underneath, like *G. uniflora*. The plant is dwarf and compact, and the flowers are large, and of a rich orange colour, with a dark ring round the centre. Mr. Beaton has already described in *THE COTTAGE GARDENER* its great qualities as a bedding-out plant.

GASTROLOBIMUM DRUMMONDI (Drummond's Gastrolobium).—An Australian plant of great beauty, having spikes of flowers of a deep orange colour, and a pure white centre, produced in great profusion.

G. LEEKIANUM (Leek's Gastrolobium).—A distinct species, with dark orange blossoms, veined with purple. They are produced freely in numerous spikes from the axils of the leaves.

G. SPECTABILE (Showy Gastrolobium).—Flowers rich orange-scarlet, produced in terminal spikes. The plant is of a dwarf compact habit, and is well adapted either for the greenhouse-stage, or for exhibition.

These three Gastrolobiums are not new, but they are little known, and yet ought to be in every good collection. They are so beautiful when well grown.

GREVILLEA DRUMMONDI (Drummond's Grevillea).—A handsome addition to a fine-foliaged genus. The leaves are of a silver grey, pinnate, each leaflet narrow and long. The corymbs of

flowers are produced from the axils of the leaves near the ends of the shoots; they are of a cream colour. It is a native of the banks of the Swan River, in Australia.

G. ELEGANS (Elegant Grevillea).—Leaves small, entire, and oval-shaped; flowers light red, tipped with yellow. A neat, handsome shrub, named by Dr. Hooker *G. alpestris*.

IMATOPHYLLUM CYRTHANTHIFLORUM (Cyrthanthus-flowered Imatophyllum).—This is a truly fine plant, with lyrate leaves, and a magnificent head of rich orange-scarlet flowers. It is a greenhouse evergreen perennial, and ought to be kept moist in winter, and freely watered when growing.

LOMATIA BIDWILLII (Bidwill's Lomatia).—A plant remarkable for its handsome foliage. The leaves are pinnated, each pinna has a thorny margin, and is curiously eared. Native of Australia.

L. ELEGANTISSIMA (Most elegant Lomatia).—Like the preceding, this is also a beautiful-leaved plant. The leaves are beautifully divided and decomposed, like those of a handsome Fern. Native of Australia.

MEYENIA ERECTA ALBA (Upright white Meyenia).—A garden variety of great beauty, and hardy enough for a greenhouse. Leaves small, oval-shaped; flowers large and showy, tubular in shape, with a spreading limb, pure white, stained in the throat with yellow.

MYOSOTIDIUM NOBILE (Noble Myosotidium).—Allied to *Myosotis*; from the Chatham Islands. Leaves large, heart-shaped, obtuse, smooth, and plicately ribbed; flowers in heads, deep blue in the centre, white at the margin, nearly half an inch broad. An herbaceous perennial of great beauty.

PIMELEA ELEGANS (Elegant Pimelea).—Leaves oval-lanceolate; flowers produced at the ends of the shoots, pure white, with large, conspicuous, bright yellow anthers; habit neat and compact. A decided acquisition from New South Wales.

RHODODENDRON BLUMI (Blume's Rhododendron).—Discovered by Dr. Blume on the Salak Mountain in Java. The flowers are of a delicate lemon colour, freely produced even on young plants. It is a beautiful species, and quite hardy enough for the greenhouse.

R. NUTTALLII (Nuttall's Rhododendron).—A truly magnificent species, with large, broad Vine-like leaves, and a noble corymb of large white flowers six inches long and as much in diameter. The bottom of the cup of each blossom is stained with lemon colour. In addition to these desirable properties the flowers are very fragrant.

R. PRINCESS ROYAL.—A garden hybrid between *R. jasminiflorum* and *R. Javanicum*. Singularly enough the colour partakes of neither of the parents, it being a pure rose colour. Habit and foliage neat and good.

R. SHEPHERDII (Mr. Shepherd's Rhododendron).—This fine species is from Bhootan. Leaves narrow and long, green on both sides; flowers in large heads, and of a deep crimson-scarlet colour.

R. SMITHII (J. Smith's Rhododendron).—Also from Bhootan. Leaves oblong, pale green beneath; flowers in close, compact heads, and of a rich crimson colour. Habit low and branching.

R. TUBÆFLORUM (Tube-flowered Rhododendron).—Found by Mr. John Henshall on the Talaga Warna Mountain, western part of Java. Very dwarf, compact habit; flowers deep rosy-purple, produced freely in terminal clusters. A neat plant for a pot on the greenhouse-stage.

R. VEITCHIANUM (Mr. Veitch's Rhododendron).—A clearly distinct species from Moulmein. Flowers pure white, sweet-scented, and five inches across, with the margins very much crisped or curled; leaves dark green; plant dwarf and bushy. A fine greenhouse plant.

R. VIRGATUM (Twiggy Rhododendron).—Leaves small and oblong; flowers delicate rosy-pink, produced singly from the axils of the leaves towards the ends of the shoots. Habit dwarf and slender. A neat pretty species.

R. WILSONI (Wilson's Rhododendron).—A hybrid, raised by Mr. Nuttall, between *R. ciliatum* and *R. glaucum*. Leaves elliptic-lanceolate and smooth; flowers longer than in *glaucum*, colour a pale delicate rose.

All the greenhouse species of Rhododendron should be grown in sandy peat, enriched with well-decomposed cowdung, and kept rather under-potted during the growing season. They should have abundance of moisture both in the air and at the roots. As soon as the growths are perfected and buds formed they should be set out of doors, and sheltered from the hot sun and heavy rains. In winter they should be protected just from frost, and kept as cool as possible, and moderately watered. They

are worthy of an entire house to themselves. Mr. Waterhouse, of Wellclose House, near Halifax, has put up a large house, without artificial heat, and devoted it entirely to the culture of what are called the Sikkim species, as well as those introduced by Mr. Nuttall from Bhootan. He has a large collection, and in a short time they will be splendid specimens—perhaps the best in Great Britain.

RICHARDIA ALBO-MACULATA (White-spotted Richardia).—A greenhouse fleshy-rooted perennial from Natal. Leaves arrow-head-shaped, and marked with oblong white blotches parallel with the nerves; where the spots are the leaf is almost transparent. Flower-spathe white, smaller, and more tubular than the old *R. Ethiopica*.

R. OCULATA (Eye-spotted Richardia).—Native of Natal. Leaves oblong-cordate, and blunt arrow-head-shaped. Flower-spates erect, small, moderately expanded, three inches long, bell-shaped, greenish yellow in colour, with a deep purple eye.

Decided acquisitions to the old popular tribe of plants known as *Calla Ethiopica*, and quite as easy to cultivate.—T. APPELBY.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(Continued from page 252.)

LIGHT LAND FARM.

WE now come to another feature in our Two Acre Farming—that of accommodating our crops to the dry, sandy, or chalky soils common in many places; and though we will not carry the reader through a long succession of seasons, as has been done with the "Stiff Land Farm," a few remarks on the cropping generally will be understood, especially as the routine work of changing the crops each year as far as possible has been already explained; and though the crops may differ on the sandy soil from those on the clayey one, the principle of a judicious course of changes is the same in both, and will be here adverted to. We take for granted that the quantity of ground to be worked is the same, and the wants of the cow and pigs are also much alike. The course, therefore, to be adopted is to get as much as possible of the same articles already mentioned, and with only one or two substitutes this can be accomplished. Saintfoin being substituted for Clover, and when a corn crop is required, Barley might be sown instead of Wheat; the other crops described may all be grown here in much the same manner as on the other farm; and if the season be a showery one, it is likely they will thrive better; but as the treatment they receive differs in some respects, a few notes on each will be the easiest way of explaining it.

SAINTFOIN.

This useful and ornamental plant is found wild on chalky hills, and it is especially adapted to the tillage ground of such places. Sow the same as Clover amongst the corn crop in April or May, roll the seed in, and the next season there is usually a heavy crop. It will bear two cuttings, but the last one ought not to be too late in the autumn, as the plant is apt to die off if left with its crown perfectly bare in winter. Saintfoin is, however, sometimes sown in drills about eighteen inches apart, and the space hoed between, there being no other crop on the ground; but this is rather an expensive way, and if the amateur manures his ground well he may have a crop of Barley as a nurse to his Saintfoin. Any improper weeds may be removed in the autumn or ensuing spring; but small annual weeds—as Groundsel, Chickweed, &c., are speedily overcome by this rampant crop. If cut green, some prefer it to lie one day before given to the cattle, but this may be determined on by the owner. It requires a good deal of making for hay, yet not more than Clover, and not so much as Trifolium; but the crop being often heavy, care must be taken to make it well before carrying to a large stack. A small one does not require the herbage so much dried.

SWEDE TURNIPS.

These grow equally well (perhaps better), on a chalky soil as on a clayey one, and often produce good crops; but instead of being sown in drills as on the stiff land, they ought to be sown broadcast here, and hoed out the requisite distance apart. Good well-rotted manure is also necessary here; and if a little salt were added to it or sown over the ground at digging time it would do good. The crop stands the winter better here than on a stiffer soil, and some go the length to say that the roots are more nutritious: be this as it may, certainly good crops of Turnips are often seen on such lands—the greatest drawback being the attack of mildew about September (if the season is dry), which can only be partially prevented by throwing a little salt on the ground at the last digging before sowing the seed. The roots ought to be taken up and stored away before severe weather sets in, as directed in a former chapter.

(To be continued.)

J. ROBSON.

VARIETIES.

CEYLON: A NICE PLACE FOR NERVOUS PEOPLE.—The air, the earth, the waters, the jungle, the forest, the rock, the vegetation of every kind, and the very house you inhabit, are alive with infinite forms of vitality, that render existence a continued conflict of attack and defence. Myriads of butterflies, wasps, bees, and beetles boom and clatter through the air wherever you move; the forest is a tremendous orchestra, at which every kind of instrument assists, from the taitoo of the cicada to the shriek of the squirrel; the earth teems with insects in a state of perpetual motion; wherever there is the presence of humidity frogs of frightful dimensions keep up an eternal serenade in that dismal kind of music of which they possess the exclusive copyright, and mosquitos thicken the atmosphere, with results that are familiar to all readers of books of Eastern travel. If you happen to shake a bough overhead as you ride through the jungle you bring down showers of ticks on your ears, eyelids, and neck. However cautiously you may proceed, centipedes, sometimes nearly a foot in length, will insinuate themselves into the creases of your sleeve, and crawl over your skin; and when you travel in the lower ranges of the hill country cohorts of land-leeches will attack your horse's fetlocks, hanging to them in "bloody tassels," while others, rearing themselves on the tips of their tails in the manner of a cobra, will dart upon your ankle and ascend your leg, sometimes mounting to your throat, till they find a convenient place to strike. These are discomforts. It is true you are in a country where you may study natural history under extraordinary advantages; where there are oysters almost a foot long; marine musicians (species unknown) whose choruses from the bottom of the sea are infinitely more marvellous than the songs of the sirens; and fish that make distinct journeys by land over burnt-up grass and dusty roads without suffering the slightest inconvenience from a broiling sun. Within doors you are a shade worse off than in the open air. The red ants alone would be sufficient to render life intolerable; and to them must be added the ingenious termites. These wonderful little creatures are more numerous than the leaves of the forest or the sand of the shores; and they possess the additional merit of being ubiquitous. They work with a vigour and rapidity so astounding that while you are at dinner they will construct one of their domed palaces, or ant-hills, at least six inches in height and twelve in diameter, under the table. Their ravages are awful, and on a scale of grandeur which, considering their individual *physique*, affords a fearful example of what may be done with unanimity. They will eat into the timber of a house till they leave nothing but the skeleton masonry, destroy the contents of a portmanteau in a single night, tunnel a gallery through a shelf of books, and, by burglarious processes known only to themselves, break into the strongest presses, and reduce all manner of records and documents to powdery fragments. Flies invade your apartments in such swarms that they frequently put out the lights, and on the occasion of a dinner party it is customary to kindle fires on the lawn for the purpose of diverting their attention, and to keep the house closed and darkened till the guests arrive. The emerald eye of a hungry leopard may sometimes be seen glaring through the foliage on the outskirts of a town, and your gardens are infested by troops of wild monkeys from

the neighbouring forests. Crows are so familiar that they will enter every apartment to which they can obtain access, pull out the contents of ladies' workboxes, steal kid gloves and pocket-handkerchiefs, open paper parcels, and undo the knots of napkins, to ascertain if they contain anything eatable. Your tame elephant will watch till the coast is clear, walk into your dining room, and deliberately sweep away a sideboard of glass in search of dainties. Lizards permanently reside on the premises, and the moment the lamps are lighted come out from their recesses. Rat-snakes consider themselves entitled to be domesticated on the establishment; scorpions take up their quarters in the sleeping apartments and wardrobes, where they snugly settle themselves down in the folds of loose dresses; and cobras glide about the house at pleasure, in some instances aspiring to the functions of the watch-dog, in addition to those pursuits for which they are generally supposed to have a greater aptitude.—(Sir J. E. Tennent.)

TO CORRESPONDENTS.

BIGG (A Scotch Subscriber).—Our correspondent asks "Whether Bigg-seed (Bere, or Square Barley), will produce Bigg?" We can only reply, that, if it will not, how is the variety perpetuated? The question, "Is it of any advantage manuring the seed before sowing?" has long since been answered by experiments in the negative.

RIBBON-PLANTING (Connaught).—We never recommend ribbons or beds; we can only tell, when others choose their own taste, if that taste agrees with the fashion at the time. Look all over our pages—every size, style, figure, and fashion are there in abundance and to spare; choose for yourself, and then we shall give you the comfort of knowing if you be in the fashion or not. But about the circle in the centre of a group. No one now puts a scarlet or yellow in the middle; generally they put a variegated plant in the centre, or neutral colour, as they call it.

CLIMBER FOR A N.E. FRONT (M. A. M.).—*Clematis montana*, as it never is disagreeable with insects or blight, is a very free and fast grower, and will grow in most soils; plant it full six inches from the wall, as the "butt end" of it grows very thick. We can say nothing about "cuttings of bedding plants, not knowing the kinds; but autumn-struck cuttings of that class, which have been stored so many in a pot, ought now certainly, or very soon indeed, to be shaken out of the winter soil, and the largest plants, at least, to have a pot, each according to its size, and so ought every bedding plant.

FANCY GERANIUMS—GLOXINIAS—GESNERAS (M. P.).—There are only two kinds in your list of new sorts, for which we would exchange any two of eight kinds of your list of older sorts. According to our judgment you are up to the very tension of the tether in Fancies; and without launching out your guineas for new kinds you cannot improve your collection, which is chiefly of "Pelargonium Geraniums," not Fancy Geraniums. Four good, cheap, upright Gloxinias are *Alba auriculata*, *Helen of Orleans*, *Miranda*, and *Impératrice Eugénie*. Four good Gloxinias, not upright—*Duke of Wellington*, *Claude Lorraine*, *Sebastiano*, and *Victoria Noel*. Six good Gesneras are *Donckelaari*, *Gloxiniiflora*, *Miellzei*, *Leopoldii* for summer; and *Zebrina* and *Oblongata* for winter. *Houttei*, and *Herberti*, and *Merki* are also equally good.

GAS TAR INSIDE A PIT (An Anxious Inquirer).—Your Cucumber plants' leaves curling and turning brown at the edges we are of opinion is caused by the fumes of the gas tar, which you say "smells very strong." The ammonia, creosote, &c., forced off by the heat must injure the leaves. Scrape off as much as you can, and give a coating of Stockholm tar; the fumes from that will not be injurious to the plants.

CONSUMPTION OF COAL (H. B.).—No one can foretell the consumption under the boiler of your small greenhouse. It depends upon draught, temperature of season, and management. You would find coke preferable to coal; it is more enduring, gives off less smoke, and is cheaper.

TROPEOLUM ELEGANS (S. G. W.).—There is no such plant as *Tropeolum splendens*, as far as we know. Perhaps you mean that best of all of them for a flower-bed *Tropeolum elegans*, and if so it will not come true from seeds, it must be had from cuttings in the autumn; and such are very apt to slip through one's fingers during the winter, being from the flowering wood or shoots they often either become leggy, or make a dead stand of it. The surest way for very ordinary accommodation would be to keep a few plants in pots from the end-of-April cuttings, and not to allow them to bloom that summer, but to be stopped from time to time, so as to make nice bushy plants to keep over the winter. Such plants would now give lots of the very best cuttings, and the tops of these would still give better and best cuttings every three weeks to planting-out time. If the last lot of such cuttings were made at the beginning of May they would be quite time enough to plant out before the end of the month. We never recommend blinds for the inside of a greenhouse; they are always in the way of something. Tiffany, or the hexagon netting, or any light, thin canvass to roll up and down on the outside, is by far the best plan. The same way as common window-blinds is probably the simplest for inside blinds for the front lights.

OBSELETE GARDEN PLANTING (Beaumont).—The plan of your garden was capital. Your own way of planting it was good; but that way of planting a garden is now obsolete, or out of the fashion. No one now-a-days would put a scarlet or a crimson, a bright rose or a yellow in the centre bed of any regular plan, although that was the rage twenty years back.

EUCHARIS AMAZONICA CULTURE (Ignoramus).—This is much more simple to treat than a Hyacinth, or Tulip, or even a common Narcissus. Each of these fail to bloom well occasionally; but if any one from the country were to write up to London inquiring about the way to keep *Eucharis* in good health, and free from blooming for two or three years, so as to get very large bulbs from it, every one of us could answer about the health, but

not one in twenty could give directions about keeping it from blooming, save by nipping out the bud of the flower-spike as soon as it was seen. The soil and the potting are just the very same as for forced Hyacinths, and the watering the same also. It is a stove bulb with very thick leaves, and all stove bulbs with stout, fleshy leaves, like a start for the yearly growth in moist bottom heat from six weeks to two months, and the bottom heat to be just 10° hotter than the heat of the air for the leaves. From 70° to 75° is the right bottom heat for this charming Amazon, and for ninety-nine out of every hundred of such stove bulbs, and, of course, 10° lower for the air of the pit or hotbed after the middle of March; between January and March, if any such bulbs are put to forcing, the top heat must be 15° lower than the bottom heat. But *Eucharis* will do and bloom without this start. The grand secret with all of this kind of stove bulbs, is to have them cooler in the winter, and in the height of summer than common stove plants. Fifty-five is the very highest degree any one of them should ever get from October to March; from March to June, bottom and top heat as above; and from June to the end of August, a well-aired greenhouse is the right place for them, and all the evergreen ones, like this *Eucharis*, to be in the stove with abundance of air, and not much moisture in September. Your plant is *Pilea muscosa*.

WATER IMPREGNATED WITH IRON (*Llwyn Offa*).—Without knowing the constituents of the water, we cannot advise you with certainty, but as the iron is, probably, kept in suspension by the water, owing to the carbonic acid which it contains; the addition of a little caustic lime, a small spoonful to a bucket of water, will, probably, help to throw down the iron. At all events trying the experiment is neither difficult nor costly.

LOBELIA AND DIELYTRA SEEDS (*J. Farnsworth*).—Your *Lobelia* is not *ramosoides*, which never seeds, but one of the endless varieties of *erinoides*. We proved five packets of the same name as yours, to have been as here stated, last season. One of them was *gracilis*, and every packet which was sent out from the old Chiswick chroniclers of *Lobelia ramosoides*, was actually and altogether nothing more or less than this *gracilis*. No wonder, therefore, if "Staffordshires" need turn a new leaf and a deaf ear in such matters. Be wide awake to the naming of bedding varieties at Kensington Gore, by Mr. Eyles, and forgive and forget all about Chiswick, it was a mistake entirely. But much obliged to you and every one like you, who wishes to put his hand to the plough. None of the seedlings of *Dielytra spectabilis* has yet showed more disposition to cross than the old Chinaman.

PERPETUAL TREE-CARNATION CULTURE (*W. X. W.*).—There is not the value of a straw of difference between the treatment of the new Perpetual Tree-Carnations and the old Tree-Carnations that were not Hybrid Perpetuals. The old Cabbage Rose, and the old Moss Rose, do not vary in the slightest degree in their old-fashioned treatment, from the new and very fashionable Bishop of Nîmes (*Evêque de Nîmes*), and other ecclesiastical, military, or politically-named Roses of the first and second waters of floristical fancy; and so it is with our good old friends, the Tree-Carnations and the new Perpetuals; good soil, large pots, ordinary care and a little enthusiasm will keep them on their legs for some years. But to get them to bloom well in the winter, they do better by the same treatment as for *Anna Boleyn* Pinks, that is, to be struck from cuttings early in the spring yearly.

INDEX FOR VOL. XX. (*C. H. H.*).—The index for Vol. XX. was issued with Number 525. On sending your address to our office you can have another copy sent you.

HOLCUS SACCHARATUS (*R. P. H.*).—You will find directions for its culture in our No. 574, p. 389. If you look at the last page of each number you will find the "Contents."

WEeping LIME BRANCHES DYING (*A Seven Years' Subscriber*).—When it was removed the branches should have been thinned, the roots by the removal were so reduced in number, that they cannot supply sap sufficient for the growth of the present head. Thin the branches; mulch over the roots in summer and keep the mulch well watered.

VARIOUS (*Lelia*).—We should prefer potting *Hydrangeas* now that had rested all winter; but in your case, having potted them in autumn, and they are now growing, we should prefer top dressing. The *Heliotropes* had better be repotted now, giving them small pots, and rich, light soil at first. We do not like growing Potatoes year after year on the same soil; but, for a change, we should try *Ash-leaved* for early, and *Flukes* for late use.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

MARCH 15th, 16th, and 17th. CUMBERLAND AND WESTMORELAND. *Hon. Secs.*, Mr. J. J. Lonsdale, and Mr. W. D. Hastwell.

MAY 23d and 24th. BEVERLEY AND EAST RIDING OF YORKSHIRE. *Sec.*, Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

JULY 18th and 19th. MERTHYR TYDVIL. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

N.B.—Secretaries will oblige us by sending early copies of their lists.

KEEPING POULTRY PROFITABLY.

Our first series of profitable poultry keepers seek to make it so by showing. Here let us observe, that we rejoice to find the old prejudice against poultry keeping and showing by gentry to be disappearing fast. It was a remnant of the dark ages. It was on a par with the rule that excluded certain costumes from Kensington Gardens, and with the enlightenment of Cheltenham, which within these few years has allowed, if it does not still allow, an inscription to the following effect:—"Tradesmen and domestic servants are forbidden to enter." Ladies and gentle-

men now freely enter the lists, and we rejoice when they are successful. They strengthen the pursuit, and they encourage others. All classes like an aristocracy, and where it does not exist, they create it. If it were possible to examine the hearts and read the thoughts of twelve conspirators or plotters for equality, it would generally be found each meant himself for President.

The first competition was at agricultural meetings, but the animals required were not accessible to the masses. It may be said of cattle as of poultry, that the greatest exhibitors are not real farmers; they are gentry, opulent traders, or retired tradesmen. It requires a man of some means to show even a pen of sheep good enough to hope for success; and poultry was hailed by many who had looked and longed at cattle shows for the opportunity or the means of sharing the honour, or at least of entering the lists.

Few of the gentry follow it with a view to profit, beyond the unquestionable gain of substituting a good for an inferior fowl on the table. There are two ways of showing. One by sending birds that must either take first prize or run it very hard, and consequently, in all probability, be claimed at a large price; or, several pens may be sent, all above the average, and at remunerating prices. In the first case the entries will not be numerous. However good the stock of a yard may be, there are not many pens of sufficient merit to carry success by storm, or to render their sale almost a certainty. The price put on these birds must not be a prohibitory one, but it may be a large one. There always have been certain yards or strains that could insure a sale at a large price of one or two pens at every great show.

In the second class of exhibitors many pens are entered and all are carefully lotted, that they shall all be highly commended, or at least commended. Well carried out, the following will be the usual result of a yard where the birds are good and are carefully selected with a view to sale. Such yards seldom achieve any great success, but they rarely fail to make a good profit. Next to buying a prize pen is to buy some of the same breed. Let us suppose A. B. C. shows six pens of Dorkings, Nos. 172, 173, 174, 175, 176, 177. All are put in at six guineas the pen. He knows 174 is worth more; he believes it will take a prize, and it does. If it were entered at more money buyers would, of course, find that it was plainly superior to the others; but if all are put at the same price, one gets second or third prize, and the rest are either commended or highly commended. When D. E. F. runs to the prize pen, "only £6 6s.," he will most likely find it sold. His attention will naturally be drawn to the pens at the same price belonging to the same owner, and so much like the prize pen that he cannot see the difference. He will buy, so will others, and all will be sold. We are not here drawing upon imagination. We have known the cases we describe; and we could, if necessary, point out now the yards where these things are constantly done. In both cases, as in all others where birds are shown, they should be alike in high condition and perfect feather.

Both these are independent ways of making money at shows. Like every other thing worth knowing or following, there is something to be learned before it can be done. The latter of the two is most successful; because it is easier to breed a number of good birds than even a few of those that are pre-eminent. Both may, however, be done, and are done.

CRYSTAL PALACE POULTRY EXHIBITION.

ALTHOUGH your excellent report of the late Exhibition leaves but little room for further observation, still I trust a few remarks by one who visited this meeting, and wishes it a continuance of all its present success and popularity, will not be deemed intrusive.

That the Crystal Palace never yet had so good an assemblage of poultry at any previous Exhibition few persons will dispute, and that the general arrangements throughout reflect the highest credit on the indefatigable Secretary, Mr. Houghton, every one must as most willingly admit.

The only improvement that suggested itself, indeed, throughout was some little alteration in the pens, to keep the cocks (always decidedly more pugnacious at this season of the year) from fighting their next-door neighbours. This is very readily accomplished by affixing two intermediate bars between the four last bars on either side of every coop, as at the Birmingham Show. The same annoyance was the order of the day at Bingley Hall, as the one now alluded to at the Crystal Palace Show, until the

Birmingham Council adopted the suggestion now again offered. It is well known that cocks will injure themselves quite as much by fighting through open wirework (so far as exhibition purposes are concerned) as in an open space; indeed they are, when thus situated, even more apt to tear and disfigure each other about the combs and wattles than ever. It is also equally obvious that the more plucky and higher the condition for showing off the cock, the more probable is it that severe injury will ensue. Nothing tends to anger exhibitors more than fowls returning home thus injured, and it is certain sometimes on the spur of the moment, that such owners are prone to express their feelings more hotly than reflectively. The trivial expense of the additional four bars to each pen will prevent anything like a repetition of this nuisance, and save also a multiplicity of personal labour during the time the public are admitted.

The report already published prevents any necessity for remark on the poultry generally, so far as the classes are concerned, yet I cannot avoid taking this opportunity of suggesting to exhibitors themselves, the folly of the "old fault" of putting fowls strange to each other, in the same pen for exhibition. They must fight, and they will fight, if so treated, in spite of all the united efforts of the most energetic Committee, giving the latter needless and endless trouble, and bringing to the owners themselves only discomfort and loss as inevitable as it is undoubtedly well-merited.

There is one other "mistake" quite too prevalent among poultry fanciers, and that generally amongst those who are in themselves the most anxious for their favourites' welfare. They pet them too much at home; they habituate them to an unnaturally warm temperature; and whilst enjoying such luxuries the fowls seem to be improved beyond expectation. Then comes, perchance, without the possibility of provision being made for it by any Committee, however desirous of so doing, the sudden change of weather that happened at the Crystal Palace, then the "petted" birds look in the last stage of unhappiness and discomfort; whilst their more homely-trained opponents, feeling but comparatively little inconvenience, wrest from them the laurels they might otherwise have readily secured.

But I will not encroach further on your valuable space, except to thank you for allowing me permission to point out these mistakes, and hope the hints I suggest may tend to their improvement, if not their total removal.—CHANTICLEER.

I OBSERVE in your Number 595 that the Crystal Palace Poultry Show is stated to be "a treat to amateurs; and that Mr. Houghton, as sole manager, may look with pride and satisfaction at the Exhibition just now terminated."

Now, Sir, without wishing to detract from just praise due to the worthy manager, permit me to trouble you with a succinct account of my visit and little adventure, or rather misadventure there, and then suffer me to ask Whether it has proved a "treat" to me? and whether, like Mr. Houghton, I can also look with pride and satisfaction upon the Exhibition just now terminated?

As an amateur, I stole a day from the turmoil of business for the purpose of treating myself with the inspection of this Show. It was the first day (Saturday), and while looking around, admiring, among others, pen No. 346, I observed an attendant attach the important words, "First prize;" whereupon I immediately proceeded to the office, and claimed these birds at the price indicated in the catalogue, and was clearly informed that "they were not sold." I at once paid the money, and received the usual printed receipt, Mr. Houghton telling me to call for their delivery the following Thursday; as I preferred so doing to risking them to a journey by rail without an attendant.

After enjoying the "rest and change" afforded by the Palace, as well as having had the pleasure of hearing my birds much lauded, I departed with every feeling in accordance with your comment, that it was "one of the greatest Shows of the season;" but unhappily I cannot add "well managed" to the "meritorious Exhibition."

Should you, Mr. Editor, be, like myself, an amateur, do try and picture to yourself my feelings, which I am sure you will not envy, when—after having published in my home circle that I was shortly to add these handsome "prize birds" to my poultry stock—the Monday night preceding the desirable Thursday I received a letter coolly announcing that my (?) *already-paid-for* "prize birds" had been previously sold to, and were to become the property of, another party.

Permit me to add the inquiries—Would not good management have avoided this? And is it not usual to ticket all pens as soon as disposed of?

I can safely aver that many pens, to my knowledge, sold some time previously, at two o'clock in the day were not ticketed. I am, however, disposed to let bygones be bygones, and believe that I am a solitary instance of a disappointed purchaser.—W. J. HOBBS, *Islington*.

DIET FOR POULTRY.

IN your number of February 14th, "A NEW SUBSCRIBER" asks "FREEFOLK" about the best manner of feeding hens, so as to cause them to lay. I was in a worse position than "A NEW SUBSCRIBER;" for I did not have my present stock till the beginning of last May, and no chickens were hatched till the middle of June. Of these I have saved seven pullets, which have been laying ever since the beginning of December.

And now as regards feeding and treatment. They have a good run—of the first importance I think. Then they are fed at least three times a-day; but the food varies according to the weather. In the summer and autumn they had only rice, bad potatoes, greens, &c., boiled up together, and mashed well into a mass. When the cold weather began I gave them barley, and occasionally (contrary to all the advice you have given) Chilies boiled up with graves, and thickened with oat or barleymeal.

What I chiefly recommend to "A NEW SUBSCRIBER" is that he provide plenty of lime and grit for his fowls, and also a good run for them in the daytime. With this and plenty of "tall" barley they will do well, particularly if they have a warm roosting-place. Mine roost in my pigsties over the pigs, and they keep each other warm.—A CLERIC.

P.S. For your own information, but not for publication, I give my name and address. After Easter I shall be happy to give a debtor and creditor account of my last year's poultry-keeping, which I have found to answer well, and which, I think, may be useful to other beginners.

[Your debtor and creditor account will be very acceptable, especially if you mention not only the cost, but the description of food given.—EDS. C. G.]

ULVERSTON POULTRY EXHIBITION.

THE Show just concluded at Ulverston has been unusually successful, although taking place at an advanced period of the early breeding season. The Committee richly deserve the success attained; for not only has the prize list been a most liberal one, embracing £12 worth of silver cups, entirely independent of money prizes, but the Committee have worked together most harmoniously, each personally not only superintending the Exhibition, but putting his "own shoulder to the wheel, in carrying out every arrangement effectively." This is as it should be, and as certainly wins the confidence of exhibitors for future meetings. It is worthy of remark, that almost every principal breeder in the kingdom competed. Indeed, as a gentleman stated in the room, "to look over the names only in the printed catalogue, was in itself a complete show of great guns." Among such, were residents of Worcester, Birmingham, and even Aylesbury and Devizes, with other localities equally remote from the Show. The weather the day previous to the Meeting was certainly one of the most tempestuous imaginable, the wind blowing an incessant hurricane: and as we journeyed to Ulverston rarely have we seen so complete a wreck of property as met the eye on every side. Chimney-pots, slates, windows blown in wholesale, and even walls and chimnies themselves lying prostrate in all directions. At the intermediate stations, female passengers were kindly "assisted" to the train, that, as the officials stated, "they might keep their feet;" and if any thoughtless individual attempted to raise an umbrella, it was in an instant either wrenched *in toto* from his grasp, or the top blown completely away against the first hedge or similar impediment to its locomotion. It was a dark and desolate look-out, the wind moaned and shrieked again in the cuttings, whilst the open lands and meadows were on all sides one mass of slushy vegetation. The apparel of every party whose misfortune it was to be exposed to the tempest was completely saturated as the clothes of a drowned man; and we confess to fears as to its influence on the morrow's attendance. As the night wore away, however, a most extraordinary change ensued, and the morning of February the 29th was one of those loveliest of spring days when the warmth of continual sunshine makes all nature glad. Such being the case, no lack of visitors

ensued, and we again express our pleasure at so unexpected a result.

To many of our readers the Victoria Concert Hall may be unknown: suffice it to say, no building can be better suited for a collection of show fowls, if not exceeding 300 pens.

On first entering, the *Spanish* class met the eye, and very rarely have we seen a class throughout so good. Mr. Teebay, of Preston, however, with birds lately so admired at the Crystal Palace Show made a clean sweep of all the prizes, leaving no possible issue for other pens, that at most Exhibitions would be certain of first prizes, save settling down to the unproductive honours of a "high commendation." It struck us that the cock in Mr. Robinson's pen, of the Gill, Ulverston, was one of the most beautiful specimens we have seen for years past. The Grey *Dorkings* were mostly sadly lacking in condition, some unusually so, quite unbefitting a poultry exhibition of the present day. Of the *Game* of all varieties, excepting Whites and Piles (which were decidedly inferior), every known colour was well represented: indeed, the man who wished for better would have an endless and hopeless task were he to attend every poultry meeting in the kingdom. A reference to the prize list will show that Messrs. Archer, Moss, Worrall, Hindson, Robinson, Brown, Swainson, Fletcher, and Cannan, with a host of others, prevented the possibility of any prize being attained, except by the best of specimens. In *Cochins*, the only pen of extraordinary excellence was those of Mr. Stretch, of Liverpool—a wonderfully perfect trio of Partridge-coloured ones. In *Hamburgs*, the Golden-spangled were most praiseworthy: indeed, not a single pen throughout the whole class escaped especial note in the prize list. Many of the Silver-spangled none could find fault with, the collection being one of the gems of the Show; but among the Pencilled varieties, of either colour, faulty combs (one of the worst of failings) were numerous. The *Polands*, though not numerically strong, were a good class. In the *Any other Variety* class Mr. Teebay again made a very easy "walk over" with his justly celebrated pen of dark Brahmas—certainly, all three birds being excellent, but one of the hens especially being the most lovely specimen for both conformation and particularly for plumage we ever saw of this variety. Good Silkies, Black Hamburgs, and Malays were exhibited in this class. In *Bantams* were some good Sebrights and Blacks; but the chief feature was the *Game*. Pen after pen was most meritorious, and many "highly commended" ones richly deserved a more remunerative return. The Silver Cup was taken by a pen of the best *Brown Reds* that have as yet been exhibited within our experience, taking precedence of very perfect birds, both Duckwings and Black Reds.

The Silver Cup for the best pen of *Ducks* will now grace the table of that well-known breeder of Aylesburys, Mrs. Seamons, and richly she deserved it; for, as stated facetiously in the room by a visitor, "it only wanted twilight to mistake them for Geese." It is no discredit to those "behind" to be beaten by such birds. In Rouens, Mr. Robinson's pen, of Ulverston, is hard to beat anywhere; but many of the others were faulty as to the ducks' beaks. In *Any Variety of Ducks* Harvey Dutton Bayley, Esq., of Biggleswade, showed a pen of Grey Calls, which was as near perfection as possible, closely pressed, however, by a pen of Buenos Ayrean Ducks, exhibited by Mr. G. Sainsbury, of Devizes, that well deserved the premium they had journeyed so long a distance to obtain.

In the Sweepstakes for *Geese* and *Turkeys*, the former prize was easily won by a wonderfully large pen of the Empden variety; the *Turkeys* being nothing extraordinary.

Many were the congratulations of visitors as to the result of this truly successful Exhibition, and the thanks of many parties were also heard for the promptitude and care bestowed at previous Meetings of the Ulverston Society in the return of the specimens at its close. In the present instance, the same anxiety to give every attention will be carried out. Several hundreds of the best birds in the empire will have now, for this season, finished the rounds of exhibition, and at once return to their appointed breeding-grounds in quietude and peace, to produce offspring worthy of their parentage, and we wish their owners every success.

The Judge on this occasion was Mr. Edward Hewitt, of Eden Cottage, Sparkbrook, near Birmingham.

SPANISH (Black).—Silver Cup and Second, R. Teebay, Fulwood, near Preston. Highly Commended, J. Dixon, North Park, Bradford, Yorkshire; T. P. Wood, jun., Chesterfield. Commended, C. T. Nelson, Newhall Street, Birmingham; T. Robinson, the Gill, Ulverston. (An extraordinarily good class.)

DORKINGS (any colour).—Silver Cup, H. W. B. Berwick, Helmsley, York-

shire. Second, J. Robinson, Vale House, near Garstang. Highly Commended, T. P. Woods, jun., Chesterfield; T. Greenhalgh, Chorlton-on-Medlock, near Manchester. Commended, T. W. Hill, Heywood, near Manchester.

GAME (Black-breasted and other Reds).—Silver Cup, J. Hindson, Barton House, Everton, Liverpool. Second, G. W. Moss, the Beach, Aigburth, near Liverpool. Third, E. Swainson, Nibthwaite. Highly Commended, T. Dodds, Ovenden, Halifax; J. Fletcher, Stoneclough, near Manchester; A. Hodgson, Illingworth, near Halifax; R. Wright, Bay Horse, Thornton, near Fleetwood; R. Gelderd, Ulverston; W. Cannan, Bradford, Yorkshire; T. Robinson, the Gill, Ulverston.

GAME (Whites and Piles).—First, W. Newby, Levens, Milnthorpe. Second, E. Swainson, Nibthwaite. Third, R. Tate, Driffield, Yorkshire.

GAME (any other variety).—First, J. Hindson, Barton House, Everton, Liverpool. Second, J. Brown, Pole Street, Preston. Third, W. Robinson, Ulverston. Highly Commended, F. Atkinson, Lord's Plain, Milnthorpe; R. Tate, Driffield, Yorkshire; T. W. Redhead, Bolton-le-Moors; M. J. Cranke, Hawkfield, Urswick; W. Cannan, Bradford, Yorkshire; J. Abbot, Kendal; W. Charter, Driffield. (The Game classes as a whole are quite equal to any Show.)

COCHIN-CHINA (any colour).—Silver Cup, T. Stretch, Marsh Lane, Bootle, Liverpool. Second, W. Cannan, Bradford, Yorkshire. Highly Commended, G. C. Whitwell, Tolson Hall, Kendal. Commended, H. P. Watson, 11, Glover Street, Preston; H. Tomlinson, Balsall Heath Road, Birmingham.

HAMBURGS (Golden-pencilled).—First, Messrs. Birch & Hoggeth, Allen Street, Sheffield. Second, W. Withington, 34, Market Place, Devizes, Wilts. Highly Commended, T. Robinson, the Gill, Ulverston; W. Withington; J. Martin, Mildenhall Mill, Claines, Worcester. (A very good class.)

HAMBURGS (Silver-pencilled).—Silver Cup, J. Dixon, Bradford. Second, W. Cannan, Bradford.

HAMBURGS (Golden-spangled).—First, W. Cannan, Bradford. Second, J. Robinson, Vale House, near Garstang. Highly Commended, J. Dixon, Bradford. Commended, Messrs. Birch & Hoggeth, Allen Street, Sheffield; R. Tate, Driffield. (A superior class.)

HAMBURGS (Silver-spangled).—Silver Cup, J. Dixon, Bradford. Second, R. Teebay, Fulwood, Preston. Commended, J. Robinson, Vale House, near Garstang.

POLANDS (any colour).—Silver Cup, J. Dixon, Bradford. Second, W. Cannan, Bradford. Highly Commended, J. Dixon.

ANY OTHER DISTINCT OR CROSS BREED.—First, R. Teebay, Fulwood, Preston (Brahmas). Second, Mrs. C. B. Kennedy, Kirklands, Ulverston (Silky Fowls). Highly Commended, W. Cannan, Bradford (Malays); J. Robinson, Vale House, Garstang (Black Hamburgs). (A very nice class.)

BANTAMS (Gold and Silver-laced).—First, T. W. Hill, Heywood, near Manchester. Second, J. Dixon, Bradford. Highly Commended, T. H. D. Bayley, Ickwell House, near Biggleswade. Commended, T. W. Hill; T. Robinson, the Gill, Ulverston. (A good class.)

BANTAMS (any other variety).—Silver Cup, H. P. Watson, 11, Glover Street, Preston. Second, H. Ellis, Northallerton, Yorkshire. Third, J. Dixon, Bradford. Highly Commended, H. Worrall, Spring Grove, West Derby, Liverpool; H. Harvey, Sheffield; J. Long, Devizes, Wiltshire. W. Lawrenson, Poulton-le-Fylde. (An especial good class.)

DUCKS (White Aylesbury).—Silver Cup, Mrs. M. Seamons, Hartwell, Aylesbury. Second, J. Abbott, Kendal. Highly Commended, J. Robinson, Vale House, Garstang; S. Burn, 1, East Terrace, Whitby. Commended, W. W. Rutledge, Storth End, Kendal. (A superior class.)

DUCKS (Rouen).—First, T. Robinson, Ulverston. Second, J. Dixon, Bradford. (A good class.)

DUCKS (any other variety).—First, T. H. D. Bayley, Ickwell House, Biggleswade. Second, G. Saunders, Rowde, Devizes. Highly Commended, J. Dixon, Bradford; J. P. Machell, Hollow Oak; J. Robinson, Ulverston. Commended, L. Weatherburn, jun., Hope House, Moor Allerton; J. Dixon, Bradford. (A very good class.)

GEESE.—Prize, G. J. M. Ridehalgh, Fell Foot, Windermere. Highly Commended, J. Towerson, Whitehaven. (The prize Geese would be hard to beat at any Show.)

TURKEYS.—Prize, G. J. M. Ridehalgh, Fell Foot, Windermere.

GAME COCK.—First, Silver Cup, A. Adamson, Bolton-le-Moors. Second, Silver Cup, H. Worrall, Spring Grove, West Derby, Liverpool. Third, G. W. Moss, the Beach, Liverpool. Fourth, W. Cannan, Bradford. Highly Commended, E. Archer, Malvern, Worcestershire; G. W. Moss; J. Case, Sled Bank, Whitcham; T. Robinson, the Gill, Ulverston; R. Gelderd, Ulverston; J. Brown, Pole Street, Preston. Commended, J. Fletcher, Stoneclough, near Manchester; W. Cannan; H. P. Watson, 11, Glover Street, Preston; J. Hindson, Barton House, Everton, Liverpool. (An undeniably good class.)

GAME CHICKENS.—Silver Cup, G. W. Moss, the Beach, Aigburth, Liverpool. Second, E. Archer, Malvern, Worcester. Third, J. Fletcher, Stoneclough, near Manchester. Highly Commended, E. Archer; T. Robinson, Ulverston; T. Owen, Barlow, Chesterfield. Commended, J. Hodgson, Ulverston; T. Robinson. (A superior class.)

CONDITION OF SPANISH FOWLS AT THE CRYSTAL PALACE.

I ALWAYS read the remarks in your Journal on all matters relating to poultry with no little pleasure, and felt what you said, a few weeks ago, with regard to the effects of the weather this winter from its unusual severity upon Spanish fowls, to be in accordance with the experience of every exhibitor. You know me to have one of the largest Spanish yards in this kingdom, and your record of prizes at the principal exhibitions, for years past, will prove that I have been one of the most successful. This week, you say, but for their "want of condition, Mrs. Hall's second-prize Spanish fowls would, probably, have been first."

When my fowls were put, with my own hands, into their basket they were in the best condition of any birds I ever sent to a show. They were sent by the express train in charge of my own man, who tells me "that when they reached the Crystal Palace and were put into their pen, they were in the most perfect condition." They had not been "coddled up" in any way at home,—the house in which they sleep is large and well ventilated, and kept at about a temperature of 50°. The night before the Judges went round the pens to make their awards at the Crystal Palace, was one of the most severe we had experienced for some weeks, and the roof of the exhibition-room being of glass, these poor birds were exposed to a degree of cold no fowls, much less highly-bred Spanish ones, could possibly sustain without injury. When my man went to the pens on the Friday morning, he found the water congealed into thick ice, which had to be thrown out in a solid cake that fresh water might be put in; and one of my birds, a young cock shown in the class for cock and two pullets, with an unusually, delicate, large, and white face, was seriously ill,—his face severely frost-bitten; and, but for the great kindness of Mr. Houghton, who allowed my man to at once remove him from the pen and keep him in his office, he would have died in the pen from the effects of the cold to which he was exposed. I had refused ten guineas for this bird; and, though still alive, he can never be worth a shilling. As the roof of the exhibition-room at the Crystal Palace is of glass, and, consequently, the birds must be exposed to a greater degree of cold during the winter than at many other Shows, I would most respectfully, yet earnestly, suggest to Mr. Houghton that some steps should be taken in future, at any rate to keep out the frost. This year, as the Exhibition advanced, matters were made a little better, by burning the gas and heating the pipes. I hope you will excuse the remarks I have made, the more so as they relate to a subject of no little importance to the owners of valuable poultry; and very certain am I, that all who know anything about fowls will admit, that to exhibit highly-bred Spanish fowls in perfect condition under such circumstances was altogether impossible; and I was told by a friend who was looking upon the scene on the Friday morning, through the doors of the tropical department, that it was very difficult to say, as the snow fell through the roof now and then upon them, which looked the most miserable, Mr. Baily, Mr. Hewitt, or the birds. The only expression he could mark on the faces of the poor Judges, seemed indicative of a wish to be warming themselves with the Parrots rather than to be shivering with the Spanish in the icy-regions in which they were placed. I would, also, suggest that the time for keeping open the Exhibition should be shortened. Birds cannot be kept so long in the pens without injury; to say nothing of the cruelty of so doing.—A LADY.

EVERLASTING LAYERS.

THERE was in this neighbourhood (Worcester), some few years since, a kind of fowl which the country folks called everlasting layers. I will give you a short description of them, and, perhaps, you will be kind enough to say what they really were. The body large, nearly the size of a Dorking; legs short; comb single, small, and erect; plumage a kind of cream or dirty white; the eggs quite as large as the Spanish. I once had a hen that laid nearly every day for eleven months, moulted, and began to lay again *immediately*. She never wanted to sit. At last she was killed by a dog. I have never been able to get the sort since.—J. C. H.

[The "Every-day layers," and "Everlasting layers" of the olden time were Pencilled Hamburgs, or off-shoots from them. Many of these cross-breeds grew to great size, and we have seen them of a sort of iron grey. If they were plentiful they would become well known in a neighbourhood. In many parts the Silver Hamburg was called the "Every-day layer," and although it did not quite deserve the appellation, yet its free laying, and the fact of its not sitting would gain it such a reputation.]

EXHIBITING BORROWED FOWLS AS THE EXHIBITOR'S OWN.

"No man is wise or safe, but he that is honest."

THERE is a most dishonest and unfair practice prevailing, not only among some poultry, but also pigeon exhibitors, of borrowing and lending birds to make up good pens for exhibition.

To say nothing of the dishonesty of the proceeding, it is unfair towards those that show their own birds. It is dishonest where a rule says that the birds are to be *bond fide* the property of the exhibitor, and where the exhibitor also signs his name on the certificate, thereby certifying that they are so, and by so doing pledging himself to obey the rules.

The dishonesty does not end there, for the public is often inclined to write to a successful exhibitor for eggs or produce from such and such birds. If, therefore, the exhibitor will attach his name to one falsehood, it may fairly be presumed he will to another, and send the eggs and produce of other birds than those required.

It is a difficult thing to prove; but morally there is no doubt the evil exists. What chance has an exhibitor of gaining a prize honestly and fairly, who will not descend to such dishonourable practices, for he has to compete not with individuals, but with a company?

If there is no remedy for the evil, let the restriction that "the birds are to be the *bond fide* property of the exhibitor," be expunged from the rules and certificates, then we shall all compete on equal terms. On equal terms, because it will be permissible to honestly produce the best pen in any legitimate way that is thought proper, and it will not be, who is the possessor of the birds, but the exhibitor only.

You have done much to cleanse the Augean stable of trimming, &c., can your pen effect this also? I have heard of a bird or birds, being hired for an exhibition season, even that will not bring them within the meaning of the words, "*bond fide* the property of, &c."—MAHOMET'S OWL.

[We can do no more than continue to publish, as we have published, the names of those who are proved to be so dishonourable and dishonest as to act in the way mentioned by our correspondent. We have no doubt, that Committees of Poultry Shows would not allow an individual to exhibit who had been proved to have so offended. Indeed, we think that a rule to this effect should be appended to every Exhibition's Rules.

"No one who has been guilty of a dishonourable breach of any Exhibition Rules shall exhibit at this Show."]

KEEPING RABBITS PROFITABLY.

THE first point for "G. W.'s" consideration is, I think, his market. Is it an open one, where he can always depend upon disposing of his goods? This is very essential where animals are concerned, because if they are kept beyond a certain age—that is, after they have improved sufficiently to command the price obtainable for them—they very soon eat their heads off. The best plan will be for him to make a contract with some poulterer to take his stock at a fixed price.

So much depends upon local circumstances that it is very difficult to say whether he could breed them to profit or not; but as he is a market-gardener I should think he could do so very satisfactorily. However, I think "G. W." might very readily, and in a very short time, so experimentalise as to be able to satisfy himself whether he could or could not breed to profit.

Let him purchase a book, which would cost him 1s., and which I fancy he might obtain at your office, to tell how to feed a rabbit when in confinement (this is! presuming him to be a complete novice), then let him buy say three rabbits as common as he pleases at about 1s. each, which he may procure from some adjoining market, or from some lad in the village; let him feed these all differently—I mean as to quantity of food. For instance: No. 1 as sparingly as possible; No. 2 must be kept more liberally; and No. 3 more bountifully still, taking care to feed them all so that they exhibit daily almost signs of improvement. At the end of a given time let him use his own judgment and the scales, and then calculate what each has cost him, taking into consideration the improvement made by each, he will then be able to tell which will pay him best at the price he expects to obtain from the poulterer. But should he not be satisfied with the result, and decide not to supply that worthy, he will still be the gainer, as he can pot the rabbits, and so treat himself to a very nice and cheap dinner, or three dinners, according to the circumference of his appetite; but if he is satisfied he will then set to work to purchase his breeding-stock.

I consider his greenhouse plan the best; and as he could admit any quantity of ventilation, he has only to keep his hutches clean, and these he might fix all round, and in some portion of the building might have two or three tiers in height, and so

breed almost any quantity. The plot of land 150 by 50, if of the right nature, would be useful for growing green-meat; but if not, by building a few brick huts, it would do to turn out a vast quantity of young rabbits until they were old enough to take up to feed; not that they require very much feeding—that is, fattening, but they would fatten faster, I think, if housed than if allowed to gambol and sport at liberty.

As to the best sort to keep, here again much depends upon the market; but I should say avoid lop-ears and such breeds. The commoner the rabbit and the nearer it approaches to the wild rabbit, particularly in colour, the better.

As there is ever a prejudice against eating tame rabbits, I should fancy if "G. W." could do away with this prejudice in the minds of the inhabitants of his locality he might dispose of a great number to his neighbours.—T. C.

CRYSTAL PALACE POULTRY SALES.—The sales at the Crystal Palace Poultry Show were larger than last year, both in number and amount—one-sixth of the poultry exhibited was sold.

A SUBSTITUTE FOR POLLEN—LIGURIAN BEES.

It is well known amongst bee cultivators, that a timely supply of pollen in the spring materially forwards breeding in a hive, and, in consequence, promotes early swarming. I lately met with an extract from the work of a celebrated German apiarian, Dzierzon, in which he announces a discovery of some little importance, as I think. He observed his bees, in the early spring, engaged in carrying to the hive from a neighbouring mill a quantity of rye meal. It occurred to him, that the only use to which the meal could be applied, was as a substitute for pollen. Following out the idea, he placed in front of his apiary a shallow trough of the meal, finely ground and dry. He soon found this was speedily appropriated on a fine day, the bees apparently preferring the meal to stale pollen, and the breeding in the hive proceeding at an accelerated rate. The feeding continued till the blossoms furnished an abundant natural supply of farina. The average consumption of meal he found to be about two pounds per hive.

Other German bee proprietors confirm the foregoing statement, one of them asserting that hives thus treated have produced four swarms. Another contends that wheat-flour will do, in the absence of rye. An American bee-keeper adds similar testimony as to the value of the discovery.

As the season is approaching for testing its importance, my present object is to call attention to it, and I trust that our apiarian friends will avail themselves of your columns in communicating the results of their experience at the earliest opportunity. I recommend a trial of different kinds of ground grain, to ascertain which is preferred.

I embrace this occasion to express my gratification that attention has in so many quarters been given to the subject of the Ligurian race of bees. The German apiarians, who speak from experience, are loud in extolling the superior qualities of the Italian over the common bee, in all respects. Even in the United States of America, attempts are now making to introduce the interesting foreigners. It would confer a public benefit, if such of your readers as have information to communicate, relative to this experiment, were to favour us, from time to time, by reporting progress. Strange it is, that this species of bee, undoubtedly known to the ancient Greeks, to Aristotle, and Virgil, should for so many centuries have remained almost unknown in Western Europe.—AN OLD APIARIAN.

DESTROYING TOMTITS.

LIKE our "RENFREWSHIRE BEE-KEEPER," I have been much annoyed with the blues of late, and tried nearly everything I could think of. Amongst the many different ways, I have tried nux vomica, mixed with lard and oatmeal, well mixed together, and rolled up in balls about the size of a filbert. I place one on each side of the entrance to the hive. When Mr. Blue Bonnet comes he greatly prefers this to knocking at the door for a bee. Within the last ten days I have picked up fifty dead blue bonnets; and I daresay many more are dead, judging from the

quantity of nux vomica they have consumed up till now. I have seen no ill effects from its application.—A BEDFORDSHIRE BEE-KEEPER.

DR. BEVAN AND FEEDING BEES.

I DEEPLY regret seeing the notice of Dr. Bevan's death, at page 294, for he was not only one of our best writers on bees, but also a very kind and good-hearted man. Some years back I used to correspond with him, not only respecting bees, but likewise on other subjects connected with natural history; and on looking over some of his letters, I found one relating to bees feeding their young queens while prisoners in their cells. Likewise on the use of coarse sugar instead of honey, as food for bees. The season for feeding weak stocks being at hand, perhaps Dr. Bevan's remarks on the subject may be interesting, which I give in his own handwriting.—J. WIGHTON.

"When adverting to your observations on royal cells, I forgot to remark, that I once had an excellent opportunity of noticing one behind the window of one of my boxes. In that instance it was open at the bottom for several days, and had a complete lid formed by the circular end of the cell, which remaining still attached to the main portion of it, was made use of by the workers, like a lid hinged to an inverted tin can, with which, whenever the queen regnant approached, which she often did with a destructive purpose, the cell was quickly closed, and her majesty warned off; at other times, the lid was open, suspended by its waxen hinge. During this period of her confinement, the young princess was very sedulously attended, and, as I conceived, duly fed, though I could only witness the introduction of the workers' heads. I considered that the opportunity thus afforded me, confirmed the statement of Huber. I have just received the *Gardeners' Chronicle*, in which I notice your answers of 'A. B. C.' As respects many of those families which have undergone deprivation this season, no doubt feeding must be had recourse to. In my own apiary, I find not only those, but most of my swarms of the current year require it. However, a hundred weight of honey is well purchased by half a hundred weight of sugared ale. Your remark respecting coarse sugar is, I think, well founded, for I remember an apiarian friend's complaining to me of having lost families of bees for several years, though he *well-fed* them. On investigating the matter closely, I found that an ill-judged economy had led to the use of the *bottoms* of sugar casks! No doubt they died of dysentery.—Yours very truly, E. BEVAN."

OUR LETTER BOX.

FOWLS IN LEADENHALL MARKET (*R. Day*).—The salesman was quite right in telling you "Surrey fowls fetch the best price all the year round." The Surrey fowls are *Dorkings*.

READY-MADE POULTRY-HOUSES.—*A. B.* wishes to know whether ready-made poultry-houses in wood or iron, such as are kept in stock in London, are to be procured from any tradesman in Leeds or York.

POLAND PRIZES AT THE CRYSTAL PALACE (*B.*).—We are happy to inform you there was a mistake in the omission of two pens from the prize list of Polands. Pens 768 and 786, belonging to Col. Clowes, and Mr. Edwards, both had third prizes.

SELECTING A CANARY (*Infirmis*).—If you desire a good singing Canary go to any of the London bird dealers and hear the birds sing. The vendor can cause them to sing by rubbing a piece of paper with a brush, and you can then select one to your liking.—*B. P. B.*

BAR-HIVES (*O. P. Q.*).—We prefer a space of half an inch between the bars, and between these and the sides of the hives. Guide-combs are not absolutely necessary, but they induce the bees without any doubt to build along the bars.

SHELTER FOR BEEHIVES (*A Young Apiarian*).—A wooden beehive might probably answer your purpose. If thatched on the top, front, and sides, no better protection can be desired. Bees kept on pedestals rarely do well in a very exposed situation. An ordinary milk-pan forms a good protection for a common straw hive, and affords little harbour for vermin. Cellar fungus (*Racodium cellare*, or Mouse-skin *Byssus*), is generally the most simple and most easily-procurable material for fumigating bees.

LIGURIAN BEES (*A Lady Subscriber*).—The advantages of this species of bee, as vouched by German apiarians, are fully set forth at page 106 of our present volume. They are briefly as follows:—1. The Italian bees are less sensitive to cold than the common kind. 2. Their queens are more prolific. 3. They swarm earlier and more frequently. 4. They are much less apt to sting. 5. They are more industrious. 6. They are more courageous and active in self-defence. To which we may add a minor advantage, but one likely to be appreciated by the ladies—viz., that their colours are much brighter, and they are, therefore, "prettier" insects than our old brown-coated favourites. (*G. G. G., and J. L., Aberdeen*).—1. Only sufficient workers will be sent to form an escort for the queen. 2. Keep them as far from other bees as possible. 3. Bar-hives are most convenient if scientific bee-keeping is contemplated. Information regarding management will be found in the articles of—A DEVONSHIRE BEE-KEEPER.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	MARCH 13—19, 1860.	WEATHER NEAR LONDON IN 1859.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
13	Tu	<i>Prunus spinosa.</i>	29.673—29.598	55—48	S.W.	.14	20 af 6	59 af 5	28 1	21	9 32	73
14	W	<i>Anemone nemorosa.</i>	29.630—29.248	53—45	S.W.	.15	18 6	VI 32	2 2	22	9 15	74
15	Th	<i>Caltha palustris.</i>	29.683—29.170	54—37	W.	—	15 6	3 6	22 3	23	8 58	75
16	F	<i>Thlaspi bursa pastoris.</i>	29.914—29.880	53—44	S.W.	—	13 6	4 6	59 3	24	8 41	76
17	S	<i>Draba verna.</i>	29.760—29.510	53—31	S.W.	—	11 6	6 6	25 4	25	8 23	77
18	SUN	4TH, OR MIDL. SUN. PRS. LOUISA	29.833—29.614	53—28	W.	.03	9 6	8 6	44 4	26	8 6	78
19	M	<i>Lepidium petraeum.</i> [BORN, 1848.]	30.301—30.166	53—26	N.	—	6 6	9 6	0 5	27	7 48	79

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 50.9° and 34.2° respectively. The greatest heat, 69°, occurred on the 19th, in 1836; and the lowest cold, 13°, on the 13th, in 1845. During the period 144 days were fine, and on 87 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

PROCEED as diligently as possible with the repotting of such of the hardwooded greenhouse plants as require it, so as to start them in good time to acquire a vigorous growth.

CACTI.—The chief point in managing these plants is to allow them an alternate period of rest and growth. To be grown in a mixture of lime rubbish and loam, with a little cowdung, and in well-drained pots. In summer to be fully exposed to the sun, and well watered; and from October to March to be kept perfectly dry.

CALCEOLARIAS (Herbaceous).—To be shifted into larger pots in a compost of equal quantities of decayed turf, leaf mould, good sandy peat, old cowdung, and silver sand, with plenty of drainage and moss on the crocks. To be kept close for a week, after which air may be freely given, avoiding currents of cold air.

HEATHS.—Every vigorous shoot that is taking the lead to be stopped, to produce a more uniform and compact plant.

LILIUM LANCIFOLIUM.—To be potted either in a good peat, with a little silver sand, or in a light sandy loam, using also some silver sand. The bulb to be placed two or three inches deep from the top of the pot to allow room for the stem-fibres to penetrate the soil.

PELARGONIUMS.—The plants potted last month to be stopped back. The house to be kept rather close for a week or ten days, to assist them to push out their eyes. Those intended to bloom in May, that have not been stopped since cutting down, will be putting up their trusses, on sunny days syringe them lightly, and shut the house up warm, with the sun upon it, about three or four o'clock in the afternoon.

STOVE AND ORCHID-HOUSE.

Keep a lively growing temperature here during the day, with a plentiful supply of moisture. Syringe, and shut up early, with 80° or more, allowing a fall of 20° during the night. Shake out and repot in succession the stove plants that have been previously recommended to be headed back, and encourage a free growth by plunging them, if possible, in bottom heat. Smaller pots to be used until they have filled them with roots, they may then receive one bold shift that might probably be sufficient for the season.

FORCING-HOUSES.

CHERRIES.—These may now want thinning if too thickly set; but the operation must be influenced by the energies of the tree and the action of the roots. Endeavour to keep the atmosphere like fine mild weather in May. During the period of the stoning of the fruit, give the trees no water at the roots, as this is generally one of the chief causes of so much of it falling off at that time.

FIGS.—When the fruit is swelling off, the trees to be liberally supplied with water. The young shoots to be

stopped to four or five eyes, with the exception of those that are required to fill up vacancies.

MELONS.—Continue the thinning, stopping, training, &c., as required. Set the early crops when in blossom, keeping a dry and lively atmosphere during that period. Air to be given freely in favourable weather, but cautiously, with some contrivance to break cold winds. Do not allow a plant to swell a fruit until sufficiently strong to sustain it.

PEACHES.—Be moderate in the application of fire heat to those that are stoning (they make little or no progress in swelling during the period)—say 65° by day and 60° by night; but when they commence their second swell increase the heat moderately. Stop all luxuriant shoots, and thin out in the second house all clusters of fruit when about the size of Peas.

PINES.—The fruiting plants will be benefited by a watering with manure water as soon as the bloom is set. Succession plants, if recently shifted, to be shaded in the middle of the day if the sun is powerful; to be kept rather close and dry, except slight sprinklings over the tops, until they have taken root, when they may be watered freely, and will generally require no more to be given for a week or ten days.

VINES.—The atmosphere in the early house, where the bunches have been thinned, to be kept pure by a gradual increase of air and moisture. The night temperature to be kept up to 65°, with an increase of 10° by day, and even more in bright sunshine. The second house may now be in bloom, and will require attention in tying the shoots and keeping up the necessary amount of heat, with less moisture. Where the fruit is set, give the Vines a good syringing, to wash off the flowers; after which the leaves and fruit should not be again wetted, but to be supplied with atmospheric moisture by watering the floor of the house, and sprinkling the flues or pipes, or from evaporating-troughs or pans. Give plenty of tepid manure water to the Vines fruiting in pots.

WILLIAM KEANE.

CROSS SCENTS — SPRING POTTING AND TREATMENT OF BEDDING PLANTS.

WHEN I followed the *toulers*, as fox hounds are called in Gaelic, I was more pleased with a cross scent than a fair sport in running the fox to "earth," watching him in the while terriers worried him, and digging him out, if the tormentors failed in turning him out into the jaws of the *toulers*. A cross scent would impel the dogs over miles of mountains, and lead to nothing at night but sound sleep and pleasant dreams, while a fair run seldom failed to end in the drudgery of digging out the fox. I find that the boy feelings at a cross scent are not confined to youth, I can enjoy the fun, in a few strokes of the pen, just as well and as keenly as ever. But to begin the day let us have a fair run to start with.

Every plant for bedding purposes that was potted last autumn, merely to hold on during the winter—whether it was one in a single pot, or a dozen in a stored pot, as we

say when more than one is put in a pot to save house or glass room in winter, or whether it was one or many in a pot—the soil was not, or, at least, should not have been quite so good as if the plant or plants were intended to be grown on to bloom in pots, and the drainage was, or ought to have been, twice as much as would be necessary for common pot-culture.

To keep to the scent as we go, we have here poorer soil to pot all bedding plants in for the winter, and twice as much drainage as we use in summer potting, and there has been no more watering than just to wet the ball through-and-through occasionally, and to let the pots or balls of some kinds get absolutely and altogether quite dry and dusty before the next watering, and that next watering not to depend so much on the dryness of the ball, as on the freshness or frostiness of the weather. All kinds of old bedding *Geraniums* belong to the class of the said “some kinds.” But no matter what class or kind in a fair run, if fairly done by, each and all of them should now be changed to a very different system, and more after the manner of summer treatment.

The old soil is now not fit to give them the same impulse at the roots, which the warm sunny days, and cozy-night requisites in spring do, and never fail to impart to the body of the plant at this season. And although it is often much more than one can accomplish, to give fresh soil and new pots and more pot room on the stages or in the pits and frames just now, that is no reason to fly from the fair scent; and every bedding plant in England which was potted last autumn, as it ought, should now be entirely shaken out of the old mould, and be put into fresh stuff and less drainage, even if as many plants must be put into one pot as were done last October.

But thousands of bedding plants were potted last October on a different plan, and none of them should stand in need of fresh soil, or fresh potting at present. *Golden Chains*, and most of the variegated kinds of *Geraniums*, except those in cutting-pots, are too valuable, or yet too scarce, to allow them to rest the whole winter, or undergo the common risks of more common kinds. Very new kinds, or costly sorts, receive the same indulgence from most people, and there are some few in the world who can afford to indulge all their stock with liberty and free soil, free treatment, and single pots from first to last. But we must not envy them, but rather endeavour to arrive at the same ends by a practical stroke of good management, with such means as we have at command; cut according to the cloth, and yet have it shine like holiday garments.

It is not good management to let common bedding plants remain much longer in the winter soil, and in potting them off, or in merely changing the old soil, and putting the very same number of plants in the very same pot for a month or six weeks, till something can be turned out under cradles to give more room and better luck. In this spring potting it is that, the good old system of getting rid of the last growth of the roots is so apt to lead the unwary astray from the right scent, as those who have holloed before they were out of the wood have done in the matter between “us twa,” Mr. Rivers and myself. He, at first, spoke of losing the spongioles of the roots only, and I said that seemed a revival of an obsolete theory. He then said the young roots went as well, and the bigger roots made fresh ones from his renewing the soil; then I turned as he did, and told of that process also, its rise and progress, and to be the common fate of the present style of pot culture. But that has nothing to do with natural laws. What I said did not require “any recent experience in the culture of fruit trees,” as “A. Z.” has it, for the same was from the beginning. Spongioles were not ordained to fall annually from the ends of the roots as the leaves fall in autumn, which was the fair scent at the starting-point. It was still the aim on the cross scent throughout. Spongioles die off every month of the year from accidents and bad

soils; but “roots in well-conditioned soil” never drop them, the roots generally go first, or must first go, as long as there remains a live root in health, that root, or all the dead and gone roots of the same plant or tree, had not cast a single spongiole their whole lifetime from a natural cause. But, as of old, the cross scent, or the moment we left the real matter of remark, the run became more instructive, and less likely to end irksomely; and the immediate practical use of it is to guard the young ideas against cross scents in false readings. I can now smell another false scent as sure as death is in the pot.

These Messrs. Henderson went and advertised my most beautiful yellow *Polyanthus*, as “Beaton’s Good Gracious *Polyanthus*,” as most certainly it is; and no doubt Beaton will get the credit of being the author of that name as sure as ever a cross scent drew a toulér aside from a pack in full cry. But the origin and progress of that name are recorded in the last two volumes of *THE COTTAGE GARDENER*.

The practical use to which that cross scent may be most particularly applied, however, refers to another class of “kind and agreeable” readers, who have never yet got on the right scent of our ways of assisting others to make out fashionable plans for planting their flower gardens. We are too wise to limit the fashion of planting flower gardens to our own style and taste. Style is the fashion, and taste is but a unit of a thousand ways of applying that fashion; and all that ever we aimed at was to see that any particular way of planting came within the rules of planting in any of the thousand ways. There are, therefore, a thousand chances against one that any plan of planting is different from our taste, and yet it is in conformity to the rules of planting or putting colours together, and as long as the arrangements are within the law we murmur not; when they are not so within we point out the flaws, and generally suggest the easiest mode of making good the difference. By so doing we escape the cross scent and the cross looks of all who may differ from our own particular taste, and thereby are enabled to put all on the right scent and on their most pleasant looks towards our calling.

But what about the Rose stocks? *THE COTTAGE GARDENER* never yet made the smallest objection to the Manetti as a temporary expedient, or to the penholder-sized root of any Rose stock under the sun which is just as good for that purpose. The Boursault Rose was the best temporary stock to increase novelties on before the Manetti stock was introduced. It is better now than Manetti for forcing young Roses on; but whether it is better, or as good, for all ways I do not know. The reason why it is better for forcing is because it is more excitable at the roots. There is not a Rose in the catalogue which can be set freely growing with less bottom heat or less stimulus from confinement in doors or under glass. It is ten times more easy to handle, to make cuttings of, or for grafting on it than the Manetti; because it has few or no spines, and it strikes as easily as the Manetti in any way you try. Whether it is affected by soil, as is the Manetti, I do not know. The whole talk about Rose stocks, therefore, this winter has come from a cross scent—from a wrong reading of what was written; and just as from the days of the kilt and sporran, there have been more excitement, more fun, and more to learn from the cross scent than from a regular field day to cover, to earth, or to the brush itself. And as long as they keep from cross grains and cross looks, I never had any objection to see or hear the full pack give tongue on the wrong scent. Indeed, the only danger in the wind is from the young catching the wrong idea, and their liability to found practices on baseless foundations, which we should all lament in the long run and guard them against.

Having thus cleared the potting-bench for that spring potting which we took in hand with this number, let us see how they do it—the gardeners I mean. The first

move is to clear some range of cold pit, fork up or dig over the bottom, or put in plunging stuff. All the small pots, with one plant in each, they plunge to the rim in something at the bottom of a shallow pit or frame. That occupies more than double the time in getting them in, but it lessens the work of watering to one-third of that which would apply to pots of that size standing on the surface; and it is ten times better for the health and progress of the young stock; and moreover, when space is most valuable, a plant that would need a 48-sized pot if it had to stand on the surface, will do rather better should it be confined to a 60-sized pot, if it is plunged. Very sandy soil is the best to plunge in early in the spring and to bedding-out time, but not the best for the summer. The reason why it is best is this: When you fill a range of cold pits with plunged pots in sandy or very sandy soil, or absolute sand, the glass is kept down close for the first ten days, more or less according to the weather; and on the forenoon of sunny days the plants are watered or syringed over the leaves. Either way the plunging stuff gets more or less rooting; and according to its dampness is its capacity to heat by the rays of the sun.

When it was very fine and sunny at the time of plunging the newly potted stock, I have seen the first three or four inches deep of the plunging sand watered just as carefully as the pots, in order to give it capacity for taking and holding sun heat on purpose to assist the nursing process with the plants; and I have often tested small pots so treated, and found them to be sensitively warm to the bottom, as if they were plunged in a spent hotbed of dung. That state, then, is the gardener's *ne plus ultra* for nursing his young stock of hardy bedders at this season of the year.

Now, let us go in and see him actually at work the first day of the spring potting season. His *Golden Chains*, his *Dandies*, his *Lady Plymouths*, and his *Minimums*, with a large share of his more strong kinds of variegated plants, have been in better soil and in better positions all last winter, and they are now passed over; and instead of them he takes, first, the whole stock of *Harkaways*, young and old. The old are six to eight in No. 32-pots, and have been since last October; and his last-autumn cuttings are from twelve to fifteen and twenty in large 48-pots, and in wide-mouthed pots on purpose for a few more kinds like *Harkaway*. Both kinds of pots are just one-half full of cinders and one crock at the bottom, and the soil is very much like that they pot *Epacris* in; but it is the quantity of leaf mould and sand that makes it look now so much like sandy peat.

Harkaway is one of the well-proved *Minimums*, and pays for all this care, and would not pay without it in the hands of many. Well, he begins with the old plants, shakes them entirely out of the mould, trims the heads from all that has happened since they were last in the potting-shed, and trims the roots also; many of them having gone the way of all the earth already; and if there are too many of them for his pot he reduces them freely, and gives each plant a No. 48-pot, small size, or two medium-sized plants in a large 48, or four small, old plants in the same sized pot, as he is tightly tied up for room. These, the biggest plants, come in for the back rows in the plunging, and he guesses by a rule of thumb the extent of plunging-room his *Harkaways* will occupy, and he puts them in according to their heights and square on the bed.

The cutting-pots are all turned out before he begins potting any of them; and as each pot is emptied the young plants are put down on the bench—first, second, and third size. All his young *Harks* are in these three heaps, and he begins potting from the heap of the larger plants; he puts four of them regularly in a large No. 60-pot, and plunges them in front of their old mothers; the second size he puts four of them also in the small-sized 60-pots; and the last, or smaller size, go six plants

in large 60's. The soil he uses is about one-half best yellow loam, three or four years old hotbed and cow-dung dry as dust, and will run like leaf mould through a small sieve, and sand half and half; and all the pots are watered before they leave the potting-bench.

The *Harkaways* have a thin, small, plain green leaf, different from all the rest; therefore they require no tallies or number-sticks, and even if they did they should not get any this time, as the plan obviates that portion of the work. But I must first tell that the *Harkaways* come in just after the *Golden Chains* on the ribbon-border, or on their own account in edging round beds of other kinds, and for mixing in pincushion-beds; then, if they needed the care of naming or tallying, as we say in this plunging, *Baron Hugel* would save the trouble. He is so very distinct in his dwarf, and very dark horse-shoe leaf, that, plunged next the *Harkaways*, neither of them want a tally, and both of them would do as a mark between any two *Trentham Scarlets* or *Shrubland Scarlets*; so that for four hundred plants of each of the four kinds four tallies would suffice, and no more would be needed if you multiply each kin by ten or twenty. So you see that a small practical ingenuity, which has grown to a system of management, will save, or may save, one fifty thousand tallies or number-sticks, and all the sorts be as true as naming could make them. *Flower of the Day* or any other variegated *Geranium* would answer the same end if plunged on this system. As the *Baron Hugel* differs nothing in respect to winter treatment, spring potting, and getting out among the bedders, from the said *Harkaway*, book them both for one, and let me explain a mystery which will be briefly touched on to-day in another page.

When *Tom Thumb* came out there were five or six kinds of *Shrubland Scarlets* all over the country, in addition to the original and lawful *Shrubland Scarlet*, alias *Smith's Emperor*: that was from visitors taking away cuttings of my seedlings which I never then named, nor do I now; but *Tom* put them all down. *Trentham Scarlets* got about exactly in the same way, from Mr. Fleming not naming all his given-away cuttings or seedlings. And what is the true *Trentham Scarlet* no man on earth, or under it, can ever tell. The one that put down *Tom Thumb* at the Crystal Palace is the best flower-garden Scarlet *Geranium* I ever saw, and I have seen more of them than most people; but I have a much better scarlet flower, though not such a good bedder as that at the Crystal Palace, which I received from Mr. Fleming himself in 1856 as his best *Trentham Scarlet* of that year, or up to that date; and out of eighty-four kinds of scarlets which were sent to the Experimental Garden that *Trentham Scarlet* carried the palm in the eye of the good lady who allows me the use of her beautiful garden for my experiments, and at her cost from first to last. Other very good judges of colour go with her in favour of "our" *Trentham Scarlet*; and I never saw a single reason to differ from them. Some one has been puzzled by my saying that this was the best scarlet flower I ever saw, and that the *Trentham Scarlet* at the Crystal Palace was the best bedder of them all. The latter is exactly like *Tom Thumb* in looks of leaf and wood, and in strength of growth; but a four-times-better bloomer, and a richer colour in the mass than *Tom*. The former has no part or affinity with the blood of *Tom's* breed; it never, or not in four years, rises to one-half the size of *Tom Thumb*; and it is, from its short joints and excessive blooming, the most difficult of all the Scarlet breed to get cuttings from, and of all the Scarlet *Geranium* flowers in the world it is by far the richest; but the habit and the short dumpy style of growth render it a second-rate bedder, and it is quite as difficult to get a stock of it as of the *Golden Chain*. The notice or remark made opposite its name in the "Garden Book" for 1859 is this:—"The first ten inches of the bed to be in future of yellow Wimbledon loam one-half, the other

half of best rotten cowdung, and to be mulched thickly with Cocoa-nut refuse, and the leaves to be no more than six inches apart at planting-out time"—that is, the leaves of one plant from those of the next. Will Mr. Fleming or Mr. Henderson give an old friend a new lift, and say which of these, or of any other, is now accepted as the true kind, as we are threatened with a botheration about them, till some nurseryman will get the Crystal Palace plant into the market, and as it is certain to drive *Tom Thumb* and all its breed out of British gardens? And country cousins may spare their pens till then; for we cannot direct any one where to get the kind even for the Experimental without going to the Crystal Palace for it.

Well, the Experimental Garden *Trentham Scarlet* was the next kind to pot after *Harkaway* and *Baron Hugel*; for I may as well say the whole is just from what has been done there this present month of March, the only difference is, that all the old plants of our *Trenthams* were pruned for cuttings, as we do the *Golden Chains* in the spring: yet to look at one of the cuttings you might take it for a cutting of *Tom Thumb* for strength and looks. After them were three kinds of minimums, which no one knows of out of that garden, and them the gardener took to the variegated ones, beginning with *Lady Plymouth*; but *Dandy* would have been the first of that class, if they had it. The same soil, the same plunging, and the same spring treatment will be given to all these, and to the young of *Tom Thumb*. Any more plunging will be more to save work than that the kinds require such extra treatment.

D. BEATON.

THE CULTURE OF MUSHROOMS.

MR. ERRINGTON has, in former numbers of this periodical, favoured us with the details of his practice in Mushroom culture; and while it is not my intention to controvert any of his very judicious remarks, I wish to say a little on the subject.

In the first place, I would remark that the quality of the horse-droppings which compose the bed is very important to the issue. None should be used but those from well-fed horses; and those from horses which eat plenty of old Beans and are very nitrogenous in quality are decidedly the best, producing beautifully shaped white solid fungi. Those, on the contrary, produced from horses whose bowels are in a laxative state from mashes, &c., should always be avoided. The truth of this opinion I have proved for the last few years by buying my droppings from a livery-stable keeper in Oxford, whose horses (like their riders the undergraduates), have a good deal of hard work to do, but, unlike them, eat old Beans almost *ad libitum*. This material, in the proportion of an addition of one barrowful of good sound loam, to four of dung, makes a most excellent bed, and its produce is extraordinary.

The materials when collected should be spread out in a dry airy shed, so that the superfluous moisture may be dried up; and when they become pretty dry the loam may be added and the bed made up.

It is most desirable to prevent undue fermentation, as it weakens the bed very much; and therefore, before being made up, the droppings should be spread out very thinly, and when formed into a bed this should be holed as soon as made, thus preventing the exhaustion which must ensue from the first outburst of fiery heat.

I consider it to be of primary importance to prevent the overheating of beds for Mushrooms, as it always leaves the droppings in an over-dried state, and renders them incapable of bringing a fine, heavy, and juicy produce.

The time which a bed takes to produce Mushrooms after spawning, depends upon how warm the bed may be when spawned; but it is best to err on the side of coolness, as excessive heat destroys the spawn rapidly. I have known beds come into production in the space of five weeks after spawning; but this is not a usual occurrence, and the more usual lapse of time is seven or eight weeks. When a bed is near its time of bearing, we always take care to let it have a watering with tepid water; and a fine-rosed watering-pot or a syringe is used for applying it. The effect of watering is very prejudicial to the young Mush-

rooms, causing them to damp off very much; and therefore we prefer keeping a moist atmosphere in the house by pouring water on the flues, which keeps the beds damp enough for the Mushrooms to flourish without the risk of frequent watering. Sometimes, however, it becomes necessary; and when it is so, we first gather closely all the useable fungi, and then apply the tepid water, raising the temperature of the house from 55° to 60° for a day or two.

There is one objection to our Mushroom-houses which are generally slated on the roof—namely, they become too hot to produce good Mushrooms toward the end of May; but in this difficulty we must resort to a good dry cellar, where, from its uniformity of temperature, it is easy to get them, indeed at any time of the year, and which will stand in good stead both for Christmas, and also in July and August.

I do not think that there is any economy in making spawn; those who can find time and opportunity may, however, do so. I prefer purchasing it, and believe that doing so is in a parallel as to cheapness with making it. Much that is spurious is, however, sold; and it behoves one to look sharply after this article, as, if it is not good, it signifies nothing what other pains may be taken.

Some persons are not particular in separating the short straw from the droppings. I practise the removal of all of it, and think that one can make the bed much more solid and less elastic by doing so. It also tends to prevent the beds from producing those spurious fungi which frequently are yielded in quantities before the regular Mushrooms come, and which tend to weaken and exhaust the bed to no purpose. I should be less particular in removing every bit of straw from a common, thick, sloping bed; but as the quantity is small which is put upon the shelf of a Mushroom-house, the quality cannot be too good to insure success.

I have now passed in review what I deem the chief points of necessary good management in producing these delicious fungi. To many of my brethren they are known as well as to myself: but I trust that in making them I shall induce some amateurs to try their hand at their cultivation. It is a far more simple business than growing Cucumbers—a feat which so many try at. Unlike that cold watery fruit, it yields us one of the most nutritious and pleasant flavoured of fungi; and I believe with my late noble employer, the Archbishop of York, that “a pound of Mushrooms is nearly as nutritious as a pound of beef.”

Most of the failures of these crops which it has been my lot to observe have arisen from want of attention, particularly at the time of spawning. Fermenting bodies of such materials are such uncertain subjects to deal with at all times as to require great and constant attention from the overlooker; and beds which are fully right in temperature when spawned are apt to increase in heat after being spawned for a day or two, by filling up the holes where the spawn is put in. Fluctuations of temperature may cause the mass to chill or overheat, and therefore our vigilance cannot be too great. We may err by seldom looking at the bed, but we cannot do wrong in frequently examining it. If the heat of a bed declines too rapidly, as it sometimes happens, it may be made to become warmer by a covering of soft hay.

HENRY BAILEY, *Nuneham*.

PROTECTING WALL-FRUIT BLOSSOMS.

IN answer to “A SUBSCRIBER,” I will submit a few remarks on this subject; though having already received great attention from Mr. Errington and others, I do not expect to be able to advance anything new. The first thing necessary to settle, is whether protection itself be at all necessary. Some contend, and with considerable force, that if the wood were laid in thinly in summer, and were well hardened before the winter came, that the shoots would be so well supplied with perfect buds, that they would suffer little from the frosts of spring, and if more than half were cut off, there would be plenty of fruit to thin away after all. They also contend that protecting has such a debilitating effect on the blossom and the constitution of the tree, that the frost that injures the exposed tree, generally also injures the protected one, unless the covering is very thick indeed. There is so much truth in this, that I am forced to admit that in some gardens, where the wood is extra well ripened, the crop of fruit in ordinary seasons is as good on the exposed as on the protected trees.

In a very sudden severe frost, however, the exposed trees have

frequently been entirely cut up, whilst the protected ones have escaped, and, therefore, if we wish to avert the self-accusation, that we did not do all that *we* could, it would be sound policy to resort to some mode of protection. The thorough ripening of the wood in autumn will be of great consequence, whether we protect or not. The evils generally spoken of as resulting from protection arise more from its abuse than its use. This season I consider that protection will be more necessary than usual, as much of the wood that otherwise would have been very first-rate, was greatly injured by the early severe frosts in the end of October.

The most certain way to save Peach and Nectarine blossoms is—

1st. To cover the wall with glass with the means of giving an abundance of air, both top and bottom; in other words, to make our Peach-walls into orchard-houses. I have lately had several complaints from parties who have failed in such houses; but in every case I have inquired into, the failure of losing the blossom has proceeded from using such houses as a means not of *protecting*, but of forwarding the blossom, and then having no extra means of keeping the frost out, the blossom was injured because it was too forward. To render such unheated and uncovered houses as serviceable as possible, the glass in the months of February and March, until the blossoms are fully expanded, should be used as a retarder instead of an accelerator. If plenty of air is left on, this will be the case even in very bright weather, for if you place a thermometer on the wall with glass some six or eight or more feet in front of it, and abundance of air on, and another thermometer on an open wall, the latter will rise the highest. The sensations of warmth by placing your hand on each respectively, will demonstrate the same fact. I am speaking of both walls in sunshine. To neutralise the strength of the sun's rays still farther, the glass in very bright weather might be dulled with a sprinkling of whitening water. The longer in such circumstances the buds can be delayed opening, the safer they will be. When once open, of course, they will like all the light you can give them; but if very bright days should succeed some dull ones, a slight shade, such as a net would give, would be useful, and air must be managed more carefully than when the weather is duller, and warmer behind the sun. Shutting up such a house by three to four o'clock in the afternoon, when there is a likelihood of frost, will enclose a body of air tolerably warm. The wall will also give out a considerable amount of heat during the night; and even if before morning a few degrees of frost should find entrance, they will do little or no harm, because the air inside will be moderately dry and still. A full exposure to a drifting, dry, frosty east wind, is what does most mischief. These houses, thanks to Mr. Rivers, are now multiplying every day. Success greatly depends on keeping the plants back as much as possible. The accelerating, if desired, must take place by diminishing the amount of air after the fruit is set and swelling. If plenty of air is left on at all times, no better plan than orchard-houses could be devised for having late fruit coming in after those on the open walls were over.

2ndly. The second best mode in my opinion, is to cover the wall with strong calico-sheeting or bunting. If there is an extra coping to the wall—say, of wood, a foot in width every spring, all the better. Poles with one end fixed to this coping just beneath it, and the other end fixed in the border, four feet or so from the wall, and six or nine feet the one from the other, will keep the calico, &c., a good distance from the trees. This stout, thick covering must be made to be moveable, either to be pulled up to the top of the wall and fixed there, or made to draw from side to side with rings on rods, or to pull up and down with pulleys. In very exposed places I should let the cover rest on pins a foot long, fixed in the poles two feet from the ground. At night, or in severe weather, the pulleys would draw the cloth up to the top of the wall, and the end of the pulley-string being fixed, the cloth could not get away. The most general plan, however, is, to pull the cloth to the top of the wall. Where poles cannot be got, I have used sash-lines held tight by means of a short post inserted in the ground, the other end being fastened to the coping. The stronger and stouter the covering material, the more the necessity for being able to move it easily. Much the same principle must be applied in its use as in that of the glass-covered wall or orchard-house. Strong calico, unbleached, about five feet and a half in width, used to be purchased for from 5d. to 6d. per lineal yard. Through this a fair amount of light will pass, and when held moderately tight, little moisture will pass through it to the trees. At first, as hinted above, it

should be used as a retarder. Supposing that the young shoots have been unnailed early in winter, they will be less excited in warm days. When, however, they show signs of swelling, they should be pruned and nailed, or tied, as the case may be, after being washed, to bury or remove any eggs of insects. Then is the time to get the covering up. The more the buds are retarded after this, provided they be not weakened, the better. Keep the covering on, therefore, in sunny days, and uncover in cold nights, if not extra frosty. If the thermometer out of doors did not fall more than 6° or so below the freezing-point, I should prefer at this stage, that the covering should be off. If above that, I should put it on, as I have had buds beginning to swell, blacked to the core, with from 8° to 12° frost. If the next day is sunny, in either case keep the covering on so that the wall trees shall not be heated so as to excite them into expansion. This plan not only delays the opening of the buds, and, therefore, gives them the chance of longer days, and more genial weather when in bloom; but it also provides for a reciprocal action between roots and branches, as the warm sunny days will have liberty to warm the earth, while it is not permitted unduly to heat the wall. If the spring is bright, the wall, if exposed, gets immoderately hot, and expands the blossoms before there is any root action, and blossoms frequently drop from this cause, as well as from being exposed to frost.

As soon as, notwithstanding our retarding care, the bloom gets expanded, we must change our tactics. As the nights are apt to be uncertain, it will be safest to cover every night. In mild weather uncover the first thing in the morning. In frosty mornings uncover only when the sun has mastered the frost—say from 9 to 10 o'clock. In cold frosty days, with little sun, and the wind dry and parching from the east, keep covered all day. Even in bright days, with an east wind little above freezing, I would keep covered, or merely pull up, beginning at one end of the wall, and then letting down again by the time the other end was reached. If the weather is mild and dull, uncover. If mild, and after such dull weather a day comes very bright, the trees will be all the better for being covered for an hour at mid-day. A little thought to avoid extremes will pay for the extra care. Woollen netting is a good material for protection; but if the meshes are from a quarter to three-eighths of an inch wide they will need to be used in the same way, as, though good for protection against frost, they would impede rather too much the light if kept on constantly.

The third best mode is to have a lighter material, fixed, and with occasion to move it but seldom. In this list I would comprise woollen netting, with square meshes ranging from half an inch to one inch; Nottingham thread lace netting, with ever so many small holes to the inch, and which will exclude everything in the shape of flies, and, as the openings are so small, will also prevent much moisture from heavy rains reaching the trees; and double-twine netting from the size of half an inch square for the meshes. The two first I prefer; and either will keep out from 4° to 6° or more degrees of frost. The Nottingham thread lace netting I like best of all for a fixture, as it lets in enough light, and just blunts its force sufficiently in very bright days. If put on early it also tends to keep the blossom back. Hexagon netting, advertised so frequently, is much the same; and various qualities as to texture, and consequently price, are to be obtained. At different times I have had pieces from Boden & Co., of Nottingham, for from 23s. and onwards—which would do for forty yards of a twelve-foot wall. Being so thin, it requires to be fastened to the coping with tape along the edges. All these are most effectual when supported at the distance of several feet from the wall and trees. The same fact applies to straw hurdles, wattled hurdles, hurdles of green spruce or laurel, &c., all of which answer well when there is time to attend to the moving of them. I think least of common fish netting. Even when of several thicknesses it does not do much in excluding a sharpish frost. It is invaluable for mellowing the force of the sun's rays in bright weather.

Supposing that poles are used, I have also found straw ropes fastened along them at a foot apart a good protection; the ropes being made rough, so that the straw was left with its ends well out when twisting. The straws left out fastened by their end made a sort of open network of straw between the bands; and if a common net were hung over all, the straw would be prevented blowing about. In all such cases a good wide coping is a great advantage. In fact, with a moveable coping a yard wide, I have known trees pass uninjured from frost for years. The direct radiation of heat from the wall was arrested.

4thly. I will just glance at the modes most in use for protecting the trees by covering the shoots with some green branches of other trees. Broom, evergreen Oak, Spruce, and Laurel, are thus often used. I prefer the last as being best for this purpose. I have succeeded well with them myself, and could point to gardens where they are used constantly, and where a failure has been a next-to-unknown thing for twenty years. I dislike Spruce, because the little needle-like foliage, as it dries and withers, gets fastened among the branches, and becomes a harbour for dirt and insects. The young shoots of the Laurel are selected, and fastened securely to the tree—not put on too thickly, but early. This helps to keep the buds back. By the time the buds open, the leaves on the Laurel-shoots will be considerably thinned and browned by parting with their moisture. This admits a good portion of light, just mellowed a little in bright days, whilst the large leaves break the force of the winds, and keep off a good deal of frost. It is hardly safe to remove them altogether until the young shoots of the fruit trees constitute a good protection for the young fruit; and even then it is best to remove the covering gradually, taking away first a third, in a few days the half of what was left, and then the other remaining part. For such trees—Apricots, Pears, &c.—I would prefer the Laurel-shoots to any other similar covering.

As already stated, however, where time and labour can be given, and first expense is no object, I consider stout calico sheeting, to be moved as desirable, to be best—next to, if not equal to, glass at that period. For a covering to be fixed and strained at a distance from the trees I prefer woollen netting—not too close in the mesh—and Nottingham thread netting. In all cases of protection it should not be removed too soon. In the case of sheeting, and even in the case of Nottingham netting, I would prefer, even after the trees were fully exposed, to keep the protecting material a few weeks against the wall ready to be let down at a short warning.

Most of us know to our cost that a night's frost at the end of May and the beginning of June has sometimes killed all the fruit when we thought all danger was over, and when even a slight protection at night, and a modified shade next day, would have saved the whole. I trust that according to his means "A SUBSCRIBER" will now be able to select for himself. R. FISH.

BLOOMING STEPHANOTIS FLORIBUNDA.

I HAVE a specimen plant of *Stephanotis floribunda*, shifted some time since, and the shoots cut back, they being so very crowded. It has now made shoots abundantly, and I wish to know what treatment I must give it to flower it this summer. It is now growing in a pit, the heat of which is from 55° to 65°. —G. P., Gloucester.

[You can do nothing more now than go on as you have gone. If the wood were well ripened last season, the shoots will produce flowers; if the shoots were not well ripened, they will not produce flowers. Give more air, but not less heat, by-and-by.]

HARRY MOORE'S MODE OF GROWING GERANIUMS.

I HAVE some of the best sorts of scarlet Geraniums, and wish to grow them on the Harry Moore system, so often spoken of; but I do not quite know in what that same system consists, and should feel obliged if you would enlighten me. The plants are only in their second year at present, and I should like to know the sized boxes you would recommend for them when full grown. I can make the boxes gay this year with two or three young plants of *Tom Thumb* or *Punch*.—H. B.

[We recommend every size of box that ever was used for Geraniums, to carry on Harry Moore's system, and you must choose the size, out of them all, which will best suit the places where you mean to exhibit the bloom or the summer blaze. Harry's boxes were exhibited on some pedestals and balconies connected with the "London Lodge," at Shrubland Park, and he wisely adopted the sizes of the boxes to the capacity of the balconies and the widths of the said pedestals; and having there proved the fact, that Jack was as good as his master in blooming scarlet Geraniums, in invisible green boxes of various shapes and sizes. The "fact" accomplished, drew the attention of the authorities to the necessity of mending their own ways. The upshot of it was, and the secret of the plan is, to grow the same plants

in the same soil and in the same boxes from one year's end to another, and for as many years as the boxes will hold together; and that is just Harry Moore's system, and a most capital system it is for those who can comprehend it in detail. Harry's free trade in blooming scarlet Geraniums "down at the Lodge," compelled our contributor, Mr. D. Beaton, to alter his protection plans "up" at the gardens, and THE COTTAGE GARDENER has made known the result of the competition to the ends of the earth, to the sure and certain benefit of all those who are, or shall ever be, engaged on box-growing Geraniums; and we are pleased to hear that Harry Moore and Donald Beaton keep up the same style of growing scarlet Geraniums to this very day.]

HEATING A PIT FROM A GREENHOUSE FIRE.

I HAVE a small greenhouse 11 feet by 10 feet, heated by a flue running round three sides of the house. The house is 10 feet high at the ridge, 5 feet at the eaves, 2½ feet brick, the rest glass. It has a short back roof about 4 feet in height, and what I want is to erect a small pit for striking cuttings, &c. Would a small elbowed-pipe passing through the greenhouse furnace be sufficient to heat a small tank at the outside built against the same wall as the greenhouse where the neck of the flue enters the house?—A CONSTANT READER FROM THE FIRST.

[A coil of pipes over, or in the furnace will answer what you propose, but if not used to such a thing it may give you a little trouble, and then you may want heat in your pipe when you do not want it in your greenhouse; but you must put a fire on to heat the pipe when you want no heat in the flue. But for this we would have proposed taking the flue through the pit first. What would you say to having a small flue from the same furnace passing to the end of the pit and back again, and by means of dampers heating that and the greenhouse flue just as you liked, together or separately? You will see lately how any sort of heat, dry or damp, can be obtained from such a flue if sunk deep enough. Can you not make a little bed in the house, by enclosing a part round the flue as suggested the other week?]

CLIMBERS FOR COVERING A FENCE—HEATING A PIT.

I HAVE at one side of my house a high fence which I wish to cover as much as possible with ornamental creepers. Can you recommend me some that will suit my purpose? I am inclined to think that some of the Gourd tribe would do well; but I do not know which are the best varieties, and shall be glad if you will name one or two of the handsomest. A writer in your number of December 20th (No. 586), speaks highly in favour of a hard-fleshed Water Melon which he has grown. Can you tell me whether it is the same as the "Citron Gourd" which I see advertised in your columns by Messrs. Henderson? and if not, where can seed be procured, as I should like to give it a trial?

If I am not trespassing on you too much, I should like your advice on another point. I have a pit in my garden, containing in all nine lights, divided into three compartments, with the ordinary trench around it. I have started the last of these, measuring about 11 feet by 5 with manure; but find it impossible to keep up any degree of bottom heat without continual fresh supplies, and not keeping horses, this makes it a very expensive business. Can you suggest any economical method of warming to give sufficient heat for my purpose—viz., to start Cucumbers and raise seeds? I have lately put a couple of hot-water bottles in the frame every night to help it on. A hot-water apparatus for the whole range would, no doubt, be the most effectual; but this would cost, I imagine, not less than £15, and the frames, brickwork, &c., being rather old are hardly worth it. As the sun gets more power there will be plenty of heat in the day; so it is more the morning and evening that I have to provide for.—D. B. B.

[We rather think that the Water Melon and the Citron Gourd are not identical. We have no doubt, that if you expressed your desires to the gentleman you name he would send you some of the best to suit your purpose. A few weeks back you will find a chapter on Gourds, &c., for such a similar purpose as you contemplate. But the ornamenting was chiefly to be temporary. If you wished to cover your fence with permanent climbers we

would introduce Gourds but sparingly; but they might be grown between the other plants for a season or two if you confined their roots to big pots, otherwise their gross feeding would take all the virtue from the soil of plants you wish to be permanent. The paper referred to will give you all the points of culture; and from the tradesman you could get a few of the most useful, and also some of the most showy—most nurserymen and seedsmen have a considerable variety. You do not say how long your fence is, nor what is its aspect; we will, therefore, mention a few that may be likely to suit.

Plants that bloom early in January and February:—

Cydonia Japonica	Chimonanthus grandiflora
Chimonanthus fragrans	Jasminum nudiflorum

The last blooms all the winter.

Flowering in spring:—

Corchorus Japonicus	Lonicera flexuosa
Lonicera caprifolia	Rosa Boursoltii
Magnolia conspicua	R. Chinensis (and varieties)

Flowering in summer:—

Clematis viorna	Rosa Banksiæ (white)
Atragene Sibirica	Rosa Banksiæ (yellow)
Jasminum fruticans	R. semperflorens
Lonicera flava	R. ruga
Glycine Sinensis	And many more climbers.

To flower in summer and autumn:—

Aristolochia siphon	Clematis viticella
Periploca Græca	C. Sieboldii
Ampelopsis quinquefolia	C. cœrulea flore pleno
Clematis flammata	Bignonia radicans
C. Hendersonii	Magnolia grandiflora
C. Virginiana	Ceanothus (of sorts)

If facing east, west, or south, the best strong-growing Perpetual and Tea Roses would do well.

To fill spaces between, tender creepers could be planted out for the season, as Nasturtiums, Maurandyas, Lophospermums, &c. With more definite information we may be able to do more to help you.

There was an article on hotbed making last week; and we fear we can add nothing to what is there said. Such a pit as the one referred to, if three feet deep or so, ought to give you heat enough for what you propose; but if you are short of manure, the best thing would be to delay setting your bed going until about the 1st of March. The trench should also be filled or covered over to prevent the heat getting away. We fear the bed has been made carelessly, or covered too deep, since you have no heat. We think you might heat the one part of eleven feet, so as to have bottom heat and top heat too, for less than the half you speak of—say a Thompson's retort or a small conical boiler, and two three-inch pipes for bottom heat and two for top heat—between forty and fifty feet altogether. What would you say to taking a small flue and return through this eleven-feet part, and pile stones, &c., all round it? On these place gravel, and then sand and soil, with means to let up the heat into the atmosphere when desirable. It would be cheaper than buying manure, unless you want the manure when worked.]

WOOD PROPER FOR CHURCH FITTINGS.

WHAT objection is there to using Elm for the seats of a church, in preference to the foreign Deal, which is so generally used now-a-days? I know that Deal is the easiest to work, but Elm is far the handsomest wood, and would last equally long.

Some years ago I was in the Chapel at King's College, Cambridge, and it struck me that the panelling-work there was of Elm. I have since heard it called "Chestnut." Can you decide the question, and also inform me if there is any old Chestnut roof in existence? I have often heard it asserted by brother clergymen, and as often heard it denied by carpenters and builders.—A COUNTRY RECTOR.

[We have consulted a gentleman most conversant with the construction of churches, both modern and ancient, and he agrees with us in the opinion that there is no objection to the employment of Elm for the purpose you mention. He knows it to have been so employed without any disadvantage, and thinks it is not more used only because it is more expensive than Fir timber.

It has been a very prevalent opinion that the roof of West-

minster Hall is constructed of Chestnut wood, but recent examinations have proved that it is formed of the wood of the rarer of the common Oaks, *Quercus sessiliflora*, Stalkless-flowered Oak. It has recently been discovered even from whence the wood was obtained. In the library of Trinity College Dublin, is "Hanmer's Chronicle," and it contains this paragraph. "The faire greene, or commune (near Dublin) called Osmontowne-greene, was all woode. From thence, anno 1098, King William Rufus, by license of Murchard (King of Leynster) had that frame which made up the rooffe of Westminster Hall, where no English spider webbeth or breedeth to this day." We have never examined attentively the woodwork of King's College Chapel, but from our remembrance of its appearance we incline to think it is of the same kind of Oak.]

NEW OR RARE HARDY AND HALF-HARDY ANNUALS.

I now take time by the forelock, and proceed to give a list of the new annuals. In the list below, those marked with an asterisk are half-hardy, requiring to be sown in March in pans or boxes in heat, or on a gentle hotbed; to be transplanted in May in patches or in beds where they are to bloom. The hardy ones may be sown in the borders or in beds about the last week in April, or the first week in May, where they are to produce their flowers. Most annuals may have the blooming season prolonged by cutting off all the seed-vessels as they appear, and also by cutting off the flower-stems when done blooming.

If the patches of seeds come up thick, let them be well thinned out, so as to give each plant its due share of light and food. Many annuals if sown in autumn stand the winter, and bloom profusely early the following year. Where seeds are required, this is the best method to get them well ripened.

**AGERATUM MEXICANUM RUBRUM* (Red Ageratum).—Very pretty.

AMPHEREPHIS INTERMEDIA.—Lilac. 1½ ft. Brazil.

AMBLYOLEPIS SETIGERA.—Bright yellow. Sweet-scented. 2 ft. E. Indies.

**ANAGALLIS GRANDIFLORA EUGENIE*.—White and blue. 1 ft.

**A. GRANDIFLORA NAPOLEON III.*—Rich carmine. 1 ft.

These two are highly spoken of as being very beautiful.

CALLIOPSIS ATKINSONIA NANA (dwarf).—Various coloured. 1 ft. high. A low, desirable, new variety.

CALLIERHOE DIGITATA (fingered).—A neat, elegant plant; rich violet purple with white eye; begins to bloom when 6 in. high, and rises to two-feet, flowering all the summer; figured in Carter & Co.'s plate No. 8.

CLARKIA ELEGANS FLORE PLENO (double-flowered).

C. PULCHELLA INTEGRIPETALA (entire-petaled).—Rosy-crimson, very beautiful; figured in Carter & Co.'s No. 8 plate.

C. PULCHELLA MARGINATA (margined).—Rosy-crimson, deeply edged with pure white. Very beautiful.

**DATURA CHLORANTHA FLORE PLENO* (double yellow).—Large, trumpet-shaped, golden-yellow, sweet-scented flowers; from Texas, growing 3 feet high. May be kept several years from cuttings.

**D. WRIGHTII syn. METELOIDES*.—Satin-white, bordered with lilac; trumpet-shaped; blooming from July to November. Native of Asia, growing 3 feet high.

DELPHINIUM AJACIS TRICOLOR ELEGANS.—A truly beautiful Larkspur.

**GAILLARDIA GRANDIFLORA* (large-flowered).—Crimson and yellow. Flowers very large. Height 1½ ft. A garden variety.

HELIANTHUS CALIFORNICUS GRANDIFLORUS (Californian Sunflower).—5 ft. Large and very double, orange-coloured and handsome.

HELICHRYSUM BRACHYRINCHUM (new everlasting).—From New Holland; grows only a foot high, and has yellow flowers.

**IPOMŒA HYBRIDA MARGINATA* (margined).—Flowers various-coloured and all margined with white; hardy enough to plant out of doors in summer.

**I. LIMBATA ELEGANTISSIMA*.—Flowers with a fine-pointed star of rich violet, the rest pure white; blooming profusely; exceedingly beautiful. All Ipomœas are twiners.

LINARIA CRESCIA.—Crimson-purple, with orange centre. 6 in. high. A garden variety.

LOBELIA GRACILIS ROSEA.—A new colour in those low bedding plants. Decidedly an acquisition.

NIGELLA HISPANICA ALBA (white Spanish).

N. HISPANICA ATRO-PURPUREA (dark purple Spanish).—Very beautiful. Growing $1\frac{1}{2}$ ft. high.

**ENOTHERA BISTORTA VEITCHII* (Veitch's evening Primrose).—Yellow and crimson. Growing 1 ft. high. Native of California. Very handsome.

OXYURA CHRYSANTHEMOIDES (yellow Ox-eye Daisy).—From California. $1\frac{1}{2}$ ft. high. Very showy.

PHACELIA TANACETIFOLIA ALBA (white Tansy-leaved).—A beautiful new annual, with finely divided leaves and pure white flowers. Growing 2 ft. high.

PHALACREA CELESTINA (sky blue).— $1\frac{1}{2}$ ft. high. Native of Peru. A new handsome blue annual.

PICRIDIVM ARABICA (Arabian).—1 ft. high. Bright yellow. May make a good bedding plant.

**PORTULACA AUREA STRIATA* (gold-striped).—With crimson.

P. BLENSONI (Blenson's).—Light scarlet, new and beautiful.

Note.—Portulacas are splendid annuals, requiring on the surface a compost of lime rubbish, brick dust, and sand to prevent them damping off.

**SOLANUM TEXANUM* (Texian).—Handsome for its fruit and dark foliage. New and beautiful.

**SPRAGUEA UMBELLATA* (umbelled).—A fine new annual from California. Sown in autumn, it will stand our ordinary winters. The flowers are in close heads, pink, with purple stamens. Habit dwarf and spreading. This will be a great favourite, and is useful as a pot plant. Height 6 in.

TROPEOLIVM MAJUS var. *YELLOW TOM THUMB*.—A dwarf, compact, clear yellow variety. Likely to prove a good bedding variety.

TROPEOLIVM MAJUS—*TOM THUMB BEAUTY*.—Another pretty dwarf plant, already commended in *THE COTTAGE GARDENER*.

TUCKERMANNIA SPECIOSA (showy).—Yellow colour. $1\frac{1}{2}$ ft. high. From California. Very showy.

VISCARIA OCULATA ALBA DUNNETTII (Dunnett's white).—A garden variety.

V. OCULATA COCCINEA NANA (dwarf scarlet).

Two new handsome varieties of one of the prettiest annuals we grow.

Besides the above, there are some new varieties of Asters, Larkspurs, Stocks, and French Marigolds, all worthy of culture where there is room for them.—T. APPLEBY.

HEATING THE WALTONIAN CASE.

ON reading your correspondent's excellent article on Waltonian Cases, &c., it has struck me that a lamp I have lately seen in this place (Louth), might be very well applied to the Case. The heat generated is very great, the trouble connected with it very little, and the cost only about one halfpenny and a quarter of a farthing for twelve hours. It is called "the Paraphine Lamp," and burns a spirit something similar to camphine. I have not tried these lamps because I use gas; but I think if Mr. West were to make inquiries respecting them, and test their capabilities, it would be worth his while.—L. R. LUCAS.

[Mr. West has just tested one of these Paraphine lamps, and found it not suitable to heat a Waltonian Case; there must be a glass funnel over it which wastes the heat before it reaches the hot water, and one of our readers who has tried the Paraphine lamp had to give it up, and sent to Mr. West for his original lamp.

Mr. Wilson has sent us a box of new night lights, which are being now tested by Mrs. Walton and Mrs. West, the two most practical gardeners in England for the Waltonian, and we shall be able next week to say how far they answer. At present their opinion is, that the wicks are only one half the thickness required.

Mr. Walton sent us the following letter referring to his original lamp, the same which Mr. West has been supplying, and Mr. Walton's gardener told us their "Case" is better than any common hotbed. He has an abundant supply of manure from Mr. Walton's stables, but prefers the Case for all his propagation, and all his plants look most flourishing. The greenhouse is very gay, and the frames are full of the most beautiful plants, and all propagated in the one original Waltonian Case without trouble.

"I was much surprised to see in *THE COTTAGE GARDENER* your account of the attempts made to invent a candle for the Waltonian Case. What is the objection to the lamp? I have never used anything else. If you wish it, I will have ascertained the exact quantity of oil consumed, so as to calculate the expense. I am told a pint and a half a-week is the outside. I pay 5s. per gallon for colza oil, probably a high price. That would be 11d.

per week burning the lamp night and day. Can any candles, giving proper heat, be made at that price?

"Price's ordinary night lights are 7d. a box, and would only last (day and night) three days, that would be 1s. 2d. for six days only. Surely the light required to heat the box must be at least three or four times stronger than the night lights. As to the trouble it is a mere trifle, a little care in trimming the lamp level, and not too high, is all that is required. My gardener tells me that my lamp, of the simplest form and construction, is trimmed at 6 P.M., and is alight at 6 A.M., and often till 8. He has already struck a great number of Verbenas, Petunias, &c., and you may see that some are topped to strike again. The only difficulty I have is to find space.—W. H. WALTON."]

THE CANARY AND THE BRITISH FINCHES.

(Continued from page 274.)

5th.—THE SERIN FINCH (*Loxia serinis*).

German, Der Girlitz.

French, Le Serin.

ALTHOUGH this bird is not a native of the British islands yet it is not unfrequently imported, and sometimes known as the St. Helena Canary, as it much resembles the wild Canary, and is so nearly allied to that bird as to be reported to produce fertile offspring with it. It will not be advisable to omit its description.

From the thickness of the bill this species has been classed with the Grosbeaks, though, in other respects, it more nearly approaches the Finches. The only one I have had was a very old bird that was brought from St. Helena: he was an excellent singer, and though not so loud as the Canary, yet his song was sprightly and pleasing. Two were exhibited at the Crystal Palace Bird Show in 1858, and one in 1859.

They are common in the southern parts of Europe, as Spain, Italy, Switzerland, and the south of France and Germany.

In size about that of a small Canary, the beak thick for its length, slightly depressed at the sides, and the upper mandible rather narrower than the lower. In summer, the beak is dark grey; in winter greyish-brown above and lighter underneath. The irides dark chestnut-brown.

The plumage bears much resemblance to that of the Siskin, or a green Canary, being of a yellowish green, darker on the upper parts, and more inclining to yellowish beneath. The face is yellowish, but striped with greyish-green.

The back is mixed with greyish, and has longitudinal blackish spots; the covert feathers of the wings are dark edged with green, the larger forming lighter bars across the wings; the quill feathers of wings and tail incline to black, but having narrow greenish borders; the breast yellowish, and the vent greyish-white. The hen is not quite so bright in colour as the cock.

Bechstein remarks, "Not only their neat form and liveliness, but also for the tolerable strength and sweetness of their untiring song cause them to be pleasant cage birds. At liberty the cock often sings perched at the top or outer twig of a tree, and, like the Woodlark, rises in the air and settles again whence he rose. He also sings while flying from tree to tree. The song, on the whole, has a great resemblance to that of the Canary's, though there are some notes resembling the Lark's."

The nest is usually built on the lower boughs of apple and pear trees; also, on beech trees, and sometimes on the oak and alder. It is neatly built of fine roots, moss, and lichen, and lined with hair and feathers. The hen lays from three to five eggs, which resemble the Canary's, except that they are slightly smaller and whiter. The young are easily reared from the nest, and their first plumage resembles the Grey Linnet, though nestlings do not become so bright coloured as old caught birds. The old ones each year moult lighter, till the underparts get almost quite white. They breed freely with the Canary; also, with the Siskin, Redpole, and Goldfinch.—B. P. B.

DAIRY HUSBANDRY.*

THE natural occupation of man is tilling the soil, and it is an occupation to which he inclines, and for which he lingers, from infancy to old age. Whatever may be his occupation he always looks forward to that period when fortune will enable him to retire from other pursuits to that of cultivating his garden or

* *Handbook of Dairy Husbandry*. By J. C. Morton, Editor of the *Agricultural Gazette*, &c. London: Longman & Co.

his farm. At no period of our existence as a nation was this propensity more strong than it is at present—never was it so universally diffused. We might readily point out the Land Societies, the periodical literature, and other agents that have promoted this most desirable result; but our present object is to hail with pleasure this additional aid to that result, and to recommend to our readers this first of a series of Handbooks of the several sections of Farm Practice, intended as references “for the farmer, the bailiff, and the working man,” but even more useful for the amateur cultivator of a small plot of ground.

“Dairy Husbandry,” is divided into eight sections, treating respectively of Dairy Statistics, Food of the Cow, Choice and Treatment of the Cow, Milk, Butter, Cheese, General Management, and a Monthly Calendar. The whole is very ably done, being the results of long and sound practice, arranged in lucid order, and with an index to facilitate reference.

The following extract affords a good estimate of the contents of the “Handbook:”—

“CHURNING.—This is generally done outside the dairy, either, as in summer time, in a paved shed adjoining, or in a back kitchen or washhouse, where the cream may be more easily kept warm during winter. In order to the separation of butter, agitation and mixture of the cream with air are both necessary. The agitation breaks and unites its oily globules, and the absorption of air appears to be a necessary thing in order to their appearance in the form of butter. This is proved both by the fact that milk or cream, however sweet, becomes sour by churning, and that considerable heat is given off, the bulk of the liquid rising in temperature 4° or 5° Fahr. during the process; and both of these facts indicate considerable absorption of oxygen gas.

“(1.) In those cases where whole milk is churned for butter, the churn is a fixture. It is an upright somewhat conical vessel, made so, however, only in order to secure the tightness of its hooping; and it is of various dimensions, from three feet and upwards in height, and from fifteen inches in diameter, according to the quantity of milk to be treated. This milk is churned when about three days old, varying according to the weather, being first allowed to cool, and then placed in large wooden vats to become sour. The practice is to place it in coolers, as in ordinary dairies, until it has acquired the temperature of the air, thereafter to pour it into large wooden vats capable of holding two meals at a time, where it sours; and if churning is done twice or three times a-week, to put into the churn all the milk which has become sour, whether it be sixty, forty-eight, or only twenty-four hours old; never, however, putting sweet milk into the churn along with the sour, as if milk becomes sour by churning, or otherwise than in the natural way, the buttermilk soon becomes rancid and unsaleable, whereas the buttermilk from milk soured naturally retains an agreeable and saleable quality for a much longer time. The milk in summer is churned at the natural temperature; in winter hot water is poured in with it till it is raised to 65° or 70° . In winter, too, when cows are fed on Turnips, the milk is poured at once into the churn and allowed to sour there; and being hindered as much as possible from cooling, and afterwards heated by the addition of hot water, or by the insertion for a time of a tin vessel full of hot water, the butter does not retain any taste of the Turnip. The churning commences and is carried on for three hours, a regular stroke of the plunging float-board being an essential part of the process, and a rate of forty to forty-five strokes per minute being maintained. This regularity is attained by the use of steam or water power, it being in the case of the larger churns too laborious for manual labour. The after management of the butter, when it has ‘come,’ is the same whatever method of churning is adopted.

“(2.) When butter is obtained by churning cream, this may be either sweet and fresh, or left to sour. In the former case it becomes sour by churning, and the process is somewhat longer; in the latter the natural sourness facilitates the separation of butter, and provided the natural change produced in the cream by keeping it is confined to mere acidity, the butter is as sweet in the one case as in the other. Whatever churn is adopted, it is washed out first with scalding water, and then with cold water before using it; the cream is then introduced through a coarse canvas cloth, which acts as a sieve, and in winter it is raised to a temperature of 55° to 60° by the addition of hot water; or, as in some churns is possible, by standing the whole apparatus in a tub containing water of that temperature. In summer, again, when for the sake of cooling churning should take place early in the morning, Mr. Littledale, of Birkenhead, reports that he has

found great advantage from placing in the churn fragments of the clear American ice, by which the temperature is kept down low enough. A common plan is to let cold water stand in the churn for an hour before using it in summer, and to let hot water stand in it for some time in like manner in winter. Another fact affecting all churns alike is, that there is no advantage in too rapid a process of churning. Cream churned from thirty to forty minutes, ought in that time to have yielded its butter; and to this end a regular, not too rapid movement of the agitator should be maintained. In some cases butter will not ‘come’ till after hours of churning, and occasionally patience is exhausted first, and it never comes at all. In this last case a fragment of ice is more likely to be effective than the crooked sixpence, on which the hopes of superstitious dairymaids sometimes depend! A last rule affecting all churns alike is, that churning should cease after the butter has fairly ‘come’ and been collected by the beaters. To prolong it tends to the separation and mixing up with the butter of cheesy particles, which add to the weight of the butter but take from its quality.”

NOTES ON NEW OR RARE PLANTS.

CRASSULA LACTEA. Ait. Nat. ord., *Crassulaceæ*.—Stems round, somewhat shrubby, much branched. Branches twisted below. Leaves opposite, connate, and contracted, at the base perfectly smooth, thick, and succulent. Inflorescence a cymose panicle, many-flowered. Peduncle short, smooth, rather stout and erect; peduncles bracteate, short. Calyx composed of five or more small, acute, green segments. Petals five or more, spreading, stellate, pure white and membranous. Stamens five to seven; filaments subulate; anthers small, two-lobed. Pistils five to seven, small. Carpels five to seven, white, many-seeded.

The genus *Crassula* contains about fifty species, all natives of the Cape of Good Hope. The majority of them are useless to decorative horticulture, being chiefly botanical curiosities, assuming rather grotesque forms; some, however, are really handsome, and the species under notice ranks among the most handsome. It blooms very profusely during December and January, and is, consequently, valuable in the greenhouse at this flowerless season of the year. An open loamy soil is most suitable for it, and a moderately warm greenhouse is the most proper place for it. Cuttings should be dried previously to being put in soil, when they root very readily.

MUTISIA ILICIFOLIA. Cav. Nat. ord., *Compositæ*.—A scandent, suffruticose plant, rising several feet in height, with angular stems and branches, slightly downy when growing. Leaves alternate, nearly sessile, destitute of stipules, aculeate and sinuous at the margin, somewhat cordate at the base, rather abrupt at the apex, but with the midrib extended into a longish tendril, somewhat downy in youth, quite glabrous when old. Peduncles long, slender, axillary, bearing several ovate-lanceolate bracts, and one large flower. Involucre cylindrical, composed of four series of loosely imbricated scales. Florets of the ray ten in number, female, with a long, slender tube, divided at the limb into two segments; the exterior segment long, strap-shaped, and entire, the interior one short and divided into two narrow revolute divisions. Pistil long, exserted. Pappus about half the length of the tube, feathery. Florets of the disc tubular, with five shallow partings at the apex. Anthers long, exserted, each with two long setæ at the base.

Only three species of this beautiful and interesting genus are as yet recorded in the best catalogues of this country, as having been introduced to cultivation, a circumstance all the more remarkable, because European travellers numerous frequent the parts of the globe which the various species inhabit. There are from forty-five to fifty known species, and they are found in Brazil, Peru, Chili, and Patagonia. *M. ilicifolia* is found in Chili. It is a beautiful and highly interesting plant; the ray is large, spreading, and fine dark purple, which with the yellow disc makes a beautiful contrast. It succeeds best in a peaty soil in a cool greenhouse, and cuttings strike pretty freely.

JACARANDA TOMENTOSA. R. Br. Nat. ord., *Scrophulariaceæ*.—A stove shrub, reaching several feet in height. Leaves about nine inches long, bi-pinnate, with from three to five pairs of leaflets, and a terminal one; leaflets acutely ovate or elliptical, slightly tomentose in a young state on both sides, and retaining the same on the underside when old. Inflorescence paniculate, tomentose. Pedicels rather short, bearing one or several flowers.

Calyx with five, ovate, acute teeth, green. Corolla about two inches long, widening in the throat, silky on the surface, purplish lilac or violet. Anthers large, distinctly two-lobed; lobes equal. Capsule roundish oval.

Jacaranda is a genus of tropical America, composed of a few species of handsome trees, averaging in their native forests from fifteen to thirty feet high, though in our stoves they rarely attain much size. The present species is one of the most beautiful, free-flowering and distinct of all the rest.

They are all reputed difficult to cultivate, and shy-flowering plants, which is, perhaps, as much owing to bad treatment and their consequent scarcity, as to any inherent peculiarity of the plants themselves. It has been recommended by Mr. Knight, to take cuttings from the upper parts of old plants, which when rooted, should be encouraged with a generous soil, bottom heat (as from tan), a moist atmosphere, plenty of light, and gradually a free admission of air, and shifting when necessary; but when the desired size is attained they should be allowed to become somewhat pot-bound, when they will bloom profusely. A good rest after flowering, pretty hard pruning, and repotting, are requisite previously to again exciting the plants into growth. The most proper soil is loam about two parts, and partially decayed leaves one part, and a little peat with plenty of sharp sand to render the whole perfectly porous. Blooms in autumn and early winter.

STYPHELIA TUBIFLORA. Smith. Nat. ord., *Epacridaceae*.—A compact growing evergreen, greenhouse shrub. Leaves alternate, nearly sessile, sometimes slightly cordate at the base, linear, short, with a longish deflexed mucro, revolute at the margin, and scabrous on the upper side. Flowers axillary, borne on the shoots of the previous year. Peduncles short, one-flowered, drooping. Calyx basely by several small green bracts, itself divided at the limbs into five very short teeth. Corolla tubular, rather elongated; tube furnished with five fascicles of villi near the base inside; limb composed of five revolute segments, each bearded with beautiful crimson hairs.

A most beautiful and long introduced, but very scarce plant. It is found in the neighbourhood of Port Jackson, New South Wales. It requires a most perfect drainage, and an open, porous, sandy-peat compost, and, in other respects, to be treated like the genus *Epacris*, to which it is allied. The greatest bane of this charming plant is a sodden soil, and every means possible should be taken to prevent such a condition. Cuttings may be taken about the same time, and treated in the same way as for those of *Epacris*.—S. G. W.

THE SCIENCE OF GARDENING.

(Continued from page 335.)

If the branch of a tree be cut off; or if an incision be made so as to remove entirely, not only a section of its bark, but also the alburnum of the wood beneath it, one bud or more, if the tree be vigorous, often will be put forth below the incision. Lateral vessels are formed from the alburnum, communicating with the bud; and having a similar return-communication with those of the bark, it speedily enlarges into a perfect branch, with its necessary leafy organs. If instead of leaving the portion of the branch above the incision exposed to the air, it be covered with moist earth, which is easily effected by the aid of a layering-pot, roots will be protruded from the lips of the wound; and as these are furnished, like the bud produced from below, with vessels from the alburnum and bark, it is evident that such plant has the power of producing branches or roots accordingly as the medium, air or earth, renders the production appropriate. This may be proved in two ways; for if a Gooseberry bush be trimmed, and then its head be buried in the earth with the roots exposed to the air, these will put forth leaves whilst the branches will emit roots. On the other hand, if a root be induced by the layering-pot in the mode mentioned, and, subsequently, it is gradually introduced to the air, by removing the soil and filling the pot with moist moss, and then by removing the moss and giving only moisture, it may eventually be left exposed, and will put forth leaves. The experiment will succeed with the Codlin, and, probably, with the Joanneting Apple.

Buds contain the rudiments of a plant, and it very early suggested itself to the gardener that they might be employed advantageously as a means of propagation; and budding has now become the most prevalent mode. In performing the operation, as the nourishment has to be afforded to the bud

from the alburnum of the stock with which it is brought in contact, this should not be exposed to the air for one minute longer than is necessary to insert the previously prepared bud, for if the surface of the alburnum becomes dry in the slightest degree, vegetation on that part is permanently destroyed. The alburnum of the stock only supplies sap, which is elaborated in the bud and its developed leaves; and through its bark is returned the peculiar juice from whence the woody matter is formed that unites it to the stock. A confused line marks the point of union; but all the deposit of wood is between that line and the bud, and is always the same in character as the tree from which the bud is taken.

A bud, with almost the solitary exception of that of the Walnut, succeeds best when inserted on a shoot of the same year's growth, and apparently for the reason that the sap and juice it yields are most nearly of the same state of elaboration as they were in the parent of the bud; and because, as in the animal frame, repair of injury, the healing of wounds, is always advanced most favourably by the vital energy of youth.

"There are," says Mr. Knight, "at the base of the annual shoots of the Walnut and other trees, where those join the year-old wood, many minute buds, which are almost concealed in the bark; and which rarely, or never vegetate, but in the event of the destruction of the large prominent buds which occupy the middle and opposite end of the annual wood. By inserting in each stock one of these minute buds, and one of the large and prominent kind, I had the pleasure to find that the minute buds took freely, whilst the large all failed without a single exception. This experiment was repeated in the summer of 1815 upon two yearling stocks which grew in pots, and had been placed during the spring and early part of the summer in a shady situation under a north wall; whence they were moved late in July to a forcing-house, which I devote to experiments, and instantly budded. These being suffered to remain in the house during the following summer, produced from the small buds shoots nearly three feet long, terminating in large and perfect female blossoms, which necessarily proved abortive, as no male blossoms were procurable at the early period in which the female blossoms appeared; but the early formation of such blossoms sufficiently proves that the habits of a bearing branch of the Walnut tree may be transferred to a young tree by budding, as well as grafting by approach.

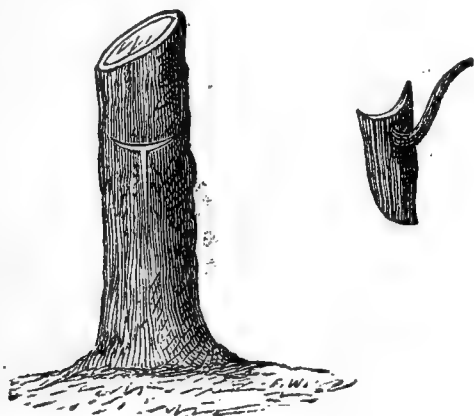
"The most eligible situation for the insertion of buds of this species of tree (and probably of others of similar habits), is near the summit of the wood of the preceding year, and, of course, very near the base of the annual shoot; and if buds of the small kind above mentioned be skilfully inserted in such parts of branches of rapid growth, they will be found to succeed with nearly as much certainty as those of other fruit trees, provided such buds be in a more mature state than those of the stocks into which they are inserted."—(*Knight's Horticultural Papers*.)

The more mature any part of a plant, the less easy is it excitable; a branch from which the leaves have fallen in autumn, requires a higher temperature to induce vegetation than does a similar branch in the spring. So is it with a bud; and, as was suggested by Mr. Knight, it appears to be occasioned by those parts having passed into a state of repose; a decreased degree of vital energy occurring preparatory to their winter sleep. Let no man scoff at the idea of this vital energy continuing in a bud after a separation from the parent, for even the head of a polypus may be cut off and grafted, without injury, upon the decapitated body of another. The mature bud is, consequently, always inserted with more success in a stock, the buds of which are less mature; for it does not commence vegetating until the supply of sap is abundant, nor until the union between the bark and alburnum has had time to be completed. When Mr. Knight reversed this comparative state of the stock and the bud, by inserting immature buds from a wall Peach upon Peach trees in a forcing-house which had nearly completed their growth for the season, the buds broke soon after their insertion, and necessarily perished for want of sufficient nourishment.

In performing the operation of budding, we have the following directions from Mr. Errington:—

"Expedition is the principal thing, and this of course presupposes some dexterity and expertness. In summer budding, the cutting or shoot from whence the buds or scions are taken is not cut from the parent tree until the moment the operation is about to commence. The best way is, to provide a pan or can with some water in it. The moment the young shoot which is

to produce the scions is removed from the parent, let all the leaves be cut off, leaving the petioles, or footstalks, of the leaves to handle the buds by. The ends of the young shoots may then be stuck on end in the water, taking care, of course, to number or name them, if accuracy of this kind be requisite. All being thus in readiness, and the operator having a bundle of long, bright, and strong bast hanging by his side, and a finely whetted budding-knife (or a relay of them where much business has to be done), in his hand, operations may commence. We will suppose what may be termed a nurseryman's case—viz., a young Plum, Apricot, or Peach stock—that is to say, in their phraseology, the Brussels stock for the Plum, the commoner stock for the Apricot, and the muscle stock for the Peach. Such stocks are generally about a couple of feet in height, and they are mostly budded about a foot from the ground. The operator generally turns his back to the stock, for such stocks are generally branched a little, and by backing up to them, the axillary branches are forced right and left out of the way of the operator by means of his legs. Well, he then takes a scion out of his waterpot, and generally commences at the lower end of it. With a clean cut he takes out a bud, now called 'a shield,' for it is necessary to cut nearly an inch above the bud, and the same below it: and with this shield a slight portion of the woody part of the stem is taken. Now, with railway speed, the wood must be extracted: this is readily done with the finger and thumb of the right hand, and one caution is here necessary. If a hole appears at the back of the bud, on the shield, it must be rejected as worthless; it is a sign that the shoot is not sufficiently mature, and that the bud was not properly organised, or that it has been drawn out in extracting the piece of wood, or rather albur-nous matter. The bud being right, a slit must be made across the stock at the very point where the bud must be inserted. This slit runs across, and with the assistance of another below it, and running perpendicularly into the centre of it, must form a figure like the capital letter T. The haft of the budding-knife



must now be applied to the sides of the incision, and by a gentle pressure up and down, the bark will be found to become readily detached from the wood. Taking hold of the leafstalk of the bud, or shield, the operator now slips it in beneath the raised bark of the incision in the stock, and when this is done, a compact and close tying of bast, from the bottom of the shield to the top, completes the process. All this, though apparently tedious in the detail, is merely the work of a minute, or, at most, a couple of minutes, to an expert and well-practised operator. We, however, can do no more than state the details of the process, and the mode of carrying it out: expertness must be acquired by some practice in this as in most other matters. All we can say in addition is, that unless each bud is quickly inserted after being extracted from the parent shoot, success becomes very doubtful, especially if the atmosphere is dry and the sun shines brightly. We would advise that any side of the stock be selected but that directly south. The sun has a powerful action in the neighbourhood of the bud when in this situation; and such is, therefore, to be avoided, although we are aware many old practitioners in the nurseries do not pay any heed to such distinctions. The reason is, that their mode of conducting the operation is so expert, and so much expedition is exercised, that the bud scarcely suffers at all in its transit; it therefore succeeds in nine cases out of ten.

"We would advise particular attention to the following points, whatever the kind of tree may be, or whatever the height or position may be at which it is budded.

"1st.—That the tree be in a state of high elaboration—that is

to say, great part of the foliage thoroughly developed, and the growing or extending principle rather on the wane. This will, in general, take place between the second week of July and the second week in August, in most parts of Britain.

"2nd.—That a lively course of root action be secured, by having recourse in seasons of drought to copious watering a day previous to budding.

"3rd.—To reject all buds that appear torn out or otherwise injured: this is indicated by the hollow before named.

"4th.—To avoid any extreme of mutilation or pruning back, at the period of budding; we have seen Roses reduced to a mere stump for convenience' sake: such cannot be successful.

"5th.—To avoid too tight ligatures; the bast must be quite close, but not tight. It should be understood that the bud does not form the union by means of pressure alone; the bast acts beneficially also by shading the bark of the shield, or bud, thereby preventing excessive perspiration.

"Those who have a variety of fruits to bud should take them according to the order in which the wood becomes perfect: thus, Cherries may stand first, Apricots second, Plums and Pears third, and Peaches and Nectarines fourth. The only after care, is to water occasionally during the first fortnight, if the weather is very dry, and to remove the bandages in due time. This may, in general, be safely done within a month, and the best criterion of the success of the bud is the dropping off of the footstalk. If the bud is taking well, this will fall away in a week or two; but if the footstalk shrivels up, it is a bad sign. The portion of the stock below the bud should, in all cases, be kept clear from useless spray. In cases where it is necessary to reserve such shoots, it will suffice to pinch off their growing-points."—J.

(To be continued.)

GREENHOUSE BETWEEN THE WINGS OF A HOUSE.

SIR J. PAXTON'S GLASS STRUCTURES.

THE back of my house has a room 12 feet high projecting on each side of my back-parlour window, the width 9 feet by 13 feet 6 inches. If I boarded over the open space on a level with the parlour floor, and covered with glass, and a glass front, which faces due south, should I have any chance of making it a good greenhouse? If so, need I have any ventilation on the top, as the back window would open into the greenhouse, and the front would have sashes to open? The ground at the back is 10 feet lower than the front of the house, and would be enclosed, keeping the space under the greenhouse warmer. None but quite hardy plants would do in the winter. A door is already in its place leading on to a landing only 3 feet wide, and leading to steps into the garden.

Is Sir Joseph Paxton's plan of hothouse building suitable for a greenhouse, as the plants must be on the ground? For an orchard-house with trees in pots it would not do so well as for Vines—being moveable is its chief advantage. Messrs. Weeks think it a retrograde movement, and not suitable for the million. Except its new plan of ventilation, I see no claim to a patent. The same thing I saw years back. Long sash-lights fastened at the top and placed in a gutter, and Cucumbers growing inside. A flue ran all round. The furnace was inside, and above it an old boiler which warmed water to mix with cold for the Cucumbers, and by removing the lid caused steam. I presume you have seen the model at 7, Pall Mall East.—G. B. C.

[We think we understand what you mean, but the first period is a puzzler, which we have read and re-read in connection with the context, without being able thoroughly to understand it. Our impression is, that the floor of your back parlour is 10 or 12 feet above the outside ground level, that the parlour window looks into an open space 9 feet wide and 13 feet 6 inches long; that that space is bounded by walls on each side, east and west, and open to the south, and the propriety of boarding this space over on a level with the parlour floor is questioned, so as to fit it for a greenhouse. We approve heartily of the suggestion, but instead of having the greenhouse floor on a level, we would place it three or four inches below the parlour floor, so that no wet or anything of that kind should affect the parlour. To make the most of it, then, whatever you may do as to the door and landing at present in existence, we would turn that parlour window into a glass-door, from whence you can pass into the conservatory at once. If your side-walls had only been 10 or 12 feet high, so as to obtain morning and

afternoon sun, we would have recommended a span-roofed house; but as we suspect these walls are high, and form part of the building, then we think you will have to be content with a lean-to sloping roof, as involving, on the whole, less expense, as by it you will only have a front gutter, instead of the two side ones—though in either case you will want a strip of lead along each side to prevent the water getting in when lashed against the walls. Supposing, then, that you settle the front of your house to be 6 or 7 feet in height, the height at the back ought, at least, to be 3 feet or 3½ feet more, which will make the length of your roof about 14 feet. If the bounding-walls were not excessively high, we would prefer a span-roof. Height of glass at sides 5½ feet; height of centre ridge-board 8 feet; walk in centre, and stage on each side, roof all fixed, and no sashes, and a couple of ventilators next the dwelling-house, one on each side, made to swing as described last week. Ventilation will be even more necessary if you have a lean-to roof, as in summer the parlour will get excessively hot if you open the window. Two sashes on Sir Joseph Paxton's plan would suit you, and so would sashes made in the usual way, two to be fixtures, 11 feet or 12 feet long, and two short ones above, made to slide. Either of these would be best, if you wanted to move the house at any time. Were the roof to be a fixture, we would have nine sash-bars from top to bottom, the two side ones each 3½ inches by 2½ inches, and the other seven each 3½ inches by 2 inches. The simplest mode of ventilating would be to glaze within a foot or nine inches of the top, place a bearer of wood across there half an inch above the bars, and let that be the rest for two wooden ventilators a yard long, to open and shut with a rod or a line and pulley.

We have not seen either the model or the houses referred to as yet. We have no doubt they will answer for all sorts of houses, as well as orchard-houses, as they can be raised off the ground as well as set on it. So far as we understand the matter, the chief object was to have houses that a tenant could legally move from place to place without having any bother with his landlord, and which could be easily taken down and put up with very little trouble. For this object we have little doubt that the system will suit. We would rather not enter on the subject of the patent. Air has been given between sashes often enough, but we question if ventilators were regularly and systematically fixed in such positions before. But why bother about a patent? A good idea should be encouraged, patent or no patent. If you will insist on our opinion, however, we must say that so far as we can judge, without a personal observation, we do not think, leaving the above specified object out of the question, that the system is any improvement either as respects general utility or economy.

We find on looking over this, that we have omitted two remarks. First. If your roof is to be fixed with stout sash-bars and no rafters, it would be as well to take an iron rod across, from wall to wall, about the centre, and screwed to each of the sash-bars. The second is, we perceive that the space below the conservatory you propose fronting also with glass. We do not know what you intend with this place, but many things might be kept there when out of bloom, as Fuchsias, Scarlet Geraniums, Dahlias, &c.; but we allude to it particularly in order to advise you to fix a small boiler there, and thence take some pipes to heat your conservatory above, and then you will have no need to confine yourself to the hardiest flowers; but may have it nice and gay the most of the year.]

TO CORRESPONDENTS.

TO CORRESPONDENTS.—Many answers are obliged to be postponed until next week.

SOWING LOBELIA SPECIOSA (*Jack-of-all-trades*).—It may be sown in pans, and placed in a Cucumber-bed any time in March; but the seedlings must be removed to a cooler place the moment they are up. The name of the succulent cannot be made out from a mere leaf. You ought to have stated the kind of plant, or to have sent a bloom of it.

WALL-TREES INJURED BY A DITCH (*A Friend in Trouble*).—The ditch cut on the north side of your wall ought not to injure your trees to the extent you describe. Mulch thickly over the surface of the border and keep it well supplied with water during the summer.

MOTION OF SAP.—*Elchies* wishes to ascertain "the name of a plant, an American he thinks, not long since imported, in which the moving sap is seen through the microscope." Can any of our readers give the wished-for information.

PHLOMIS LEONURUS.—Mr. Fish is much obliged by the liberality of "ROSE," and still more gratified by the accounts of her efforts and great success. He fears that such success at times would rather shame many would-be instructors and professionals. He thinks the Cape seeds under the circumstances will be worth her attention, and would advise trying some of each in the Chrysanthemum-house.

PLANT-STAGE FOR A SPAN-ROOFED HOUSE (*A Constant Reader*).—If your ridge-board is not above 9 or 10 feet from the floor, we would have a level stage in the centre. A walk on each side, 3 feet wide, and a shelf on each side from 18 to 24 inches wide, which would leave 6 feet, or 5 feet, for the width of the centre table. If the front shelves were 2 feet 9 inches or so from the floor, we would make the central table 3 feet. Such an arrangement would be good for showing off the plants to advantage, as little would be seen of the pots except the front rows. But if the ridge were much higher than we have supposed, or the object not so much to show off, but to grow as great a number of short, bushy plants in the space as possible, then we would prefer a centre shelf, and two at least, on each side. The first mode is so superior for showing off, that we would prefer it in every case, if we could make sure of some portable shelves, or pots, on which to raise plants, if we require them to be raised. Having plenty of lights there will be no drawing on the flat stage.

DIANTHUS HEDDEWIGH CULTURE (*E. S. C.*).—In our No. 574, p. 391, you will find full directions.

OIL-PAINTING FLOWER-POTS—LIME WATER (*Amy Flower*).—We so paint them of a stone colour every year, and we can answer for its not being injurious to the plants growing in the pots. Lime water is injurious to Heaths, Rhododendrons, and Azaleas; but to other potted-plants it may be applied without injury, to expel the worms. Half a peck of freshly-slaked lime may be thoroughly mixed with twenty gallons of water, and then allowed to settle. When clear it is fit for use.

NEMOPHILA INSIGNIS FOR EDGING (*F. K. W.*).—The best plan is to sow the seeds at once where the flowers are wanted, as there is only one here and there who can grow the plants well in heat. Although the blue *Nemophila* is among the prettiest flowers we have, it is, perhaps, the least likely of them all for neat edgings, and it is certainly the last plant we should think of to edge any one of our beds. We never miss having a bed of it some time in the year, and we never would edge that bed with anything else. The most beautiful bed of it we ever had was from a sowing on the second day of July. There was an early snow that season, about a couple of inches deep, and the myriads of flowers with the green tips of the leaves made such a charming picture as we shall never forget. This *Nemophila* lasts about twice as long in the autumn as it does in May and June.

DISEASED CUTTINGS (*O. W. D.*).—The cuttings have decayed from being kept too wet and too cold. No application of Tobacco water, &c., would help them.

FRUIT TREES (*Lancashire*).—For your Peach-house you may have for dwarfs—*Royal George* and *Bellegarde* Peaches; and for riders—1 *Violette Hâtive*, and 1 *Stanwick* Nectarine; and 1 *Early York* Peach. For the flued wall, your 12 dwarfs may be—2 *Peach* or *Moorpark*, 1 *Kaisha*, and 1 *Pine Apple* Apricots; 1 *Balgowan*, 1 *Hardwicke* Seedling, and 1 *New White*, and 1 *Oldenburg* Nectarines; 1 *Early York*, 1 *Noblesse*, 1 *Barrington*, 1 *Walburton* Admirable Peaches. The 14 riders for the flued wall may consist of—1 *Moorpark* or *Peach*, 1 *Large Early*, 1 *Kaisha*, and 1 *Blenheim* Apricots; 1 *Early Grosse Mignonne*, 1 *Early Savoy*, 1 *Royal George*, 1 *Barrington*, and 1 *Walburton* Admirable Peaches; 1 *Early Newington*, 1 *Downton*, 1 *Pitmaston* Orange, 1 *Violette Hâtive*, and 1 *Elvage* Nectarines. The sixty-six trees for your pyramidal orchards may be composed of—APPLES.—3 *Irish Peach*, 3 *Kerry Pippin*, 3 *Cox's Orange Pippin*, 3 *Cellini*, 3 *Adams' Pearmain*, 3 *Keddleston* Pippin, 3 *Sturmer Pippin*. PEARS.—2 *Jargonelle*, 2 *Louise Bonne* of Jersey, 2 *Beurré Superfin*, 2 *Comte de Lamy*, 2 *Marie Louise*, 2 *Suffolk Thorn*, 2 *Thompson's*, 2 *Knight's Monarch*, 3 *Joséphine de Malines*, 2 *Beurré de Rance*. PLUMS.—2 *Rivers' Early Favorite*, 2 *Green Gage*, 2 *Purple Gage*, 2 *Victoria*, 2 *Jefferson*, 2 *Reine Claude de Bayay*. CHERRIES.—1 *Belle d'Orleans*, 1 *Black Tartarian*, 2 *Mayduke*, 2 *Elton*, 2 *Florence*, 2 *Morello*, 2 *Late Duke*.

CAMPANULA FRAGILIS (*Little Hothouse*).—Very many thanks for the kind offer of *Campanula fragilis*; we have it in abundance, else we would have jumped at your offer. It is one of the best of the little old-fashioned trailing kinds for a window-sill; for the front of a rockwork, also, all the summer. The ladies who pronounced the lively pale blue flowers of *Campanula fragilis* to be mauve colour are sadly mistaken; it is just as far from mauve as Liverpool is from Paris, where this extremely rare colour in flowers originated.

MANURES FOR A SUBURBAN GARDEN (*Beginner*).—All those you mention are good, but guano and super-phosphate of lime are still better. Buy a canister of them as advertised under the head "Portable Manures" in our columns.

SHRUBS, &c., FOR LIVERPOOL SHORE (*Aquarius*).—When we travelled that part of the coast we did not see any trees or shrubs which looked healthy, and rather than give our own opinion as to what would be most likely to answer, we should prefer to hear from some of the natives thereabouts, and more particularly from the Liverpool Botanic Garden and Nurseries. Our correspondent wishes for directions for making "a rectangular freshwater aquarium, combining cheapness and durability." We shall be obliged by any one sending us the information desired, and if with working plans all the better.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

MARCH 15th, 16th, and 17th. CUMBERLAND AND WESTMORELAND. Hon. Secs., Mr. J. J. Lonsdale, and Mr. W. D. Hastwell.

MAY 23d and 24th. BEVERLEY AND EAST RIDING OF YORKSHIRE. Sec., Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

JULY 18th and 19th. MERTHYR TYDVIL. Sec., Mr. W. H. Harris, 142, High Street, Merthyr.

N.B.—Secretaries will oblige us by sending early copies of their lists.

MR. J. W. HORRY AND THE CRYSTAL PALACE POULTRY SHOW.

WHEN I read Mr. Horry's letter in your last number I was at first disposed to commiserate with his wounded feelings in not ob-

taining the prize birds he wished to purchase; but, at the same time, I thought he would better have shown his desire to let "bygones be bygones," as he expressed himself, if he had avoided making the subject public; and being of opinion that where much is professed something is often hidden, I have made inquiries, and give you the following version:—The pen was sold, not by the Secretary, but by his clerk; and the said clerk, when he discovered the error, immediately wrote to Mr. Horry, expressed his regret, and informed him the money would be returned. Notwithstanding this, Mr. Horry came on the Thursday, and demanded his birds. He was shown the receipt-book, and it was pointed out to him that the name of the actual purchaser preceded his by several entries, and he was offered the cheque he had paid. He refused it, and put the claim into the hands of his solicitors; they, having better temper and more discretion than their client, accepted the return of the cheque, and there the matter should have ended; but Mr. Horry seems to think that, though neither law nor equity is on his side, he has a grievance, and he rushes into print—your readers will judge with what motives. I am assured that this is the first Show at which such a mistake has happened, and that it was the result of employing a new clerk.—MODERATION.

REARING THE YOUNG OF THE SHELL-DUCK.

I HAVE for several years past kept a pair of Shell-Ducks, the young of which I cannot succeed in rearing. Would you tell me how I may proceed as to whether it is desirable to place the eggs under a foster mother? the parents being so extremely shy, they would probably decoy them away if allowed to hatch them. If so, should you prefer the duck or hen?

I have also two Egyptian Geese, one of which I would gladly exchange for a gander. Should any of your correspondents or readers be able to do this I shall be glad to hear from them, and arrange the exchange.—O. BARTON, *Oxton, Notts.*

[We have reared the young of the Shell-Duck many times without difficulty by putting the eggs under a hen, and by feeding as we would other ducks, with the exception that we always kept a very shallow vessel filled with water and oatmeal, from which the young ate constantly. In a state of nature these birds make their nests, and sit in holes and burrows, and hence get the name of the Burrow Duck. If they are sickly, a little salt in the water is often beneficial.

Should any of our readers wish to make the exchange you propose, they will, we hope, answer in our columns.]

TREATMENT OF A DECLINING FOWL— OPENING THE CROP OF A CHICKEN.

I HAVE a remarkably fine dark grey Dorking cock, weighing upwards of 10 lbs., and of splendid shape and colour. It has always been a healthy, vigorous bird; but lately its comb has become very pallid, together with his wattles and face. It is dull and mopes about. The upper part of the comb is quite grey, as if it had no circulation in it. When it eats it has to stop every now and then, and opens its beak as if it were gasping for breath; and at the same time it often makes a kind of noise like a shrill sneeze—a snapping metallic noise it is. It eats well, and its feathers are glossy and bright. I have given it castor oil several times, but its comb and face do not improve in colour, and it seems to be getting less lively every day. What am I to do?

It may interest you to hear of an operation which I successfully performed on a Dorking chicken a fortnight old about ten days ago. The little thing had got hold of a quantity of whole corn by accident, and became crop-bound. I tried every remedy to relieve it, but ineffectually. At length, seeing that it was dying, I took a sharp penknife, cut the crop open, cleaned it of its contents, and having washed the wound with warm water, sewed it up again. The bird is quite well, and growing fast.—E. C.

[You must continue to purge the bird with castor oil. We should then advise you to use Baily's pills. The medical treatment must be continued till its evacuations cease to be green and slimy, as they doubtless are now, and become grey and firm. It will not be restored to health till this has taken place. Of course, you must be somewhat guided by its strength, and what it is able to bear; but we advise that you give immediately a table-spoonful of castor oil. If the bird appear much weakened by it, give it some bread soaked in ale or port

wine. Its food should be nourishing: ground oats mixed with milk, stale crusts wetted, and such things.

The operation you mention is very interesting; we have performed it successfully on chickens ourselves. When necessary to operate on old birds, they suffer more from it. We think amateurs do well to interchange such communications.]

APIARIAN NOTES.—No. V.

MARCH.

LIGURIAN BEES.—I have been very frequently asked, "What can there be in the scientific and practical pursuit of bees, which serves to keep up in the mind of an apiarian a continuous interest for so many years?" and although it is a question not always easy to answer satisfactorily, at least, to the inquirer, yet the fact remains undoubted, that very few of those who once become inoculated with any amount of enthusiasm, with regard to apiarian pursuits, ever altogether cease to be affected with what some may call the disease of apimania. But if there had previously been any probability of a diminution of the active symptoms of the malady, the splendid honey season of 1859, would go very far to rouse them, and demonstrate that they were only dormant for a time.

Nor do we seem, in the coming season, likely to want for exciting causes for seriously affecting those who may be pre-disposed to the disorder, for (to drop this metaphorical prelude), we shall have a very great source of interest in the introduction of the Ligurian species into our apiaries; and in the results of the experiments instituted by the "DEVONSHIRE BEE-KEEPER," and others, for the purpose of establishing the foreigners among us. Hence I quite look forward to a season of unusual interest with regard to them.

I mentioned in two previous articles (Apiarian Notes, No. III., September, and Apiarian Notes, No. IV., October, in 1859), that I had established a Ligurian queen in one of my stocks. In conjunction with the "DEVONSHIRE BEE-KEEPER," two queens were ordered from M. Hermann in August last. On arrival, after a very long delay on the road, one of them (a very fine queen), was found to be dead with all her companions; and the other queen with a few bees were barely living, having suffered in both cases from starvation. This queen was taken by me, having been quickly revived by a little honey; but it proved to be so remarkably diminutive, and as M. Hermann in his letter of advice had stated, that it was born only a week or ten days before he sent it, I had very strong doubts as to its being impregnated and fertile. The little box containing the bees arrived on the 27th of August, and was at once placed over the central aperture in the top of a Stewarton hive, from which the old queen had been removed a few days previously. Here they remained, separated by perforated zinc from the English bees for twenty-four hours, and on the communication being fully opened, they were received below with little or no fighting.

On September 3rd, and again on the 12th, I removed and inspected every comb of the hive, and in each instance had a good view of the queen, which was of undoubted Ligurian origin, though, as I before said, remarkably diminutive.

There was not a trace of eggs or brood at either time to be seen, though a Ligurian queen belonging to my friend before named was then laying eggs rapidly. Therefore, I had good cause for fearing that the result of this speculation, at least so far as this Ligurian queen and the colony were concerned, would be a failure.

Up to the present time my doubts have not been removed, but to-day (February 29), even while writing this, a considerable quantity of pollen is being carried in, so I may hope that she is after all a fruitful mother.

LONGEVITY OF BEES.—It will be both interesting and instructive to observe how long the common English bees live in the hive after the substitution of a Ligurian queen. This has already been alluded to by the "DEVONSHIRE BEE-KEEPER," but I would again call attention to the subject, and would invite all who may adopt this foreign yellow race, to take accurate note of the date of transfer, and also of the time at which the last black bee is seen, and furnish us with the required information, either through the pages of this periodical, or by letter. Thus from the evidence of many witnesses shall we be able to arrive at a solution of a doubtful point. Some have asserted that six months are the period of their duration of life; but, that this is too limited we are already convinced by the fact that more than

six months have elapsed since the removal of the English queens, and the ordinary black bees are still very numerous. My belief is, that from eight to nine months are the duration of common worker-bees' existence; but we shall soon have sufficient proof of the real state of the case.

ENDURANCE OF INTENSE COLD.—This last winter has given abundant evidence (if it were before wanting), of the power of bees in well-peopled colonies of resisting cold. In the neighbourhood of Exeter, the thermometer stood very nearly at zero, yet so far as I have been able to determine, not one of my fourteen stocks has materially suffered from the cold, and some are apparently crowded with bees. The working season seemed likely to be an early one, as pollen was carried into hives, in this neighbourhood, on the 5th of February. But since that time the weather has been very unpropitious for the collection of pollen.

MANAGEMENT FOR MARCH.—As the warmer weather comes on, it will be advisable to remove and clean floor-boards. Also, it will be well to see that the hives are not too much exposed to the glare of a March sun, which often tempts thousands of bees to destruction, on bright, cold, windy days. But anything like confinement is, of course, not to be thought of. It will be necessary now to inspect all hives whose store of food is doubtful, and supply those that are deficient with small quantities from time to time; and this should be done until the end of April, or even later, as the consumption of food by the young is so great at this season, that many hives perish, after having early appeared to commence work vigorously.—S. BEVAN FOX, *Exeter*.

LIGURIAN QUEENS—MODE OF UNITING TO SWARMS.

ALTHOUGH a bee-keeper of many years' standing, I am not yet a bee-master, and have not much experience in manipulating with them. I should, therefore, deem it a favour if you will inform me whether the following will answer as a means of adding a stock to her Ligurian majesty. My present stocks are all in flat-topped straw hives, but as I do not expect to get my Ligurian queens before swarming time, I propose to have a couple of young swarms settled in two of Tegetmeier's bar-boxes, and remove the combs, one by one, into an empty box; of course, in doing so, looking carefully for the queen, and if I can find her, I shall secure her, and place the small box containing the Italian queen and her attendants over an opening in the top of the box at night, a slip of perforated zinc intervening before allowing free access to the new comers.—J. M.

[We think your plan a good one, and would recommend it to the attention of bee-keepers who may be desirous of availing themselves of the offer made by "A DEVONSHIRE BEE-KEEPER," but who possessing only common hives, are deterred by distrust of their own ability, to discover and remove the original queen from the stock appropriated to the Ligurian sovereign. It is always easy to discover a queen in a bar-hive by transferring the combs, bees, and all, into another box, and keeping a sharp look-out during the removal. In the case of a recent swarm care is requisite in handling the combs which are new and brittle, and if the weather be warm at the time, it would be best to operate in the cool of the morning. An efficient veil and stout gloves should be worn, although the bees are generally taken too much by surprise to make a serious attack.]

LIGURIAN BEES.

BEFORE accepting "THE DEVONSHIRE BEE-KEEPER'S" liberal offer, would you be pleased to inform me—

1. What advantage is anticipated from the Ligurian over the British bees??

2. Would they be equally hardy and industrious in our variable climate?

3. How is it possible for "THE DEVONSHIRE BEE-KEEPER" or his customers to preserve either breed pure from the drone influence of his own and adjoining apiaries? Would, therefore, this cross of foreign blood be an improvement or the reverse on the constitution of our own bees?

These are questions of interest to all your apiarian readers, and of the highest importance to those intending to give them a trial, as well as to parties into whose immediate neighbourhood they may be introduced.—A RENFREWSHIRE BEE-KEEPER.

[1. The question has been already asked by "A LADY SUBSCRIBER," and was answered in our last number.

2. The Italian species having been found more hardy, industrious, and prolific than the common bee, both in Germany and in the Alpine districts, there can be little doubt that it will prove equally valuable in this country.

3. "THE DEVONSHIRE BEE-KEEPER" will banish all his stocks of the ordinary kind of bee to a distance of a mile and a half from his apiary during the next swarming season. As none of his immediate neighbours keep bees, he considers the cloud of drones arising from his four Ligurian stocks will be amply sufficient to insure the purity of the breed, especially as Dzierzon states that even where both kinds of drones exist in about equal numbers, the Italian queens will usually encounter Italian drones. Those who avail themselves of the offer of "A DEVONSHIRE BEE-KEEPER" should not permit their metamorphosed stocks to swarm during the present year, as there will probably be few or no Italian drones to fertilise the young queens. In the next and succeeding years it may also be advisable to isolate the strangers as much as possible during the swarming season. No bee-keeper need fear the introduction of these foreigners into his own or adjoining apiaries, since in Germany the Ligurian has been successfully crossed with the common bee, producing a variety which is considered by some apiarians to equal, if it does not actually excel, the pure-bred Italian race.]

WATER FOR BEES.

IN my communication in your last number, on the subject of meal or flour as a substitute for pollen to bees, I observe an omission which I may be permitted to supply. I ought to have mentioned that the German authorities alluded to, make a practice of giving a supply of water to the bees simultaneously with the meal. Indeed, this has long been a custom with many apiculturists, even as early as January, for without water pollen is of comparatively little use. Both the meal and the water are in the early spring introduced within the hive; old combs being used in each case where no better receptacle exists.

It may be well to remark, that as a difference of opinion prevails respecting the probable intermixture of breed between the common and Ligurian bees, Dzierzon's experience is opposed to placing both kinds near together. When this was the case, he found that out of fifty young queens, one half only were impregnated by Italian drones; the other half produced a bastard progeny.—AN OLD APIARIAN.

OUR LETTER BOX.

MINORCA FOWLS (W. H.).—The Minorca is a black fowl with intensely red face, and white ear-lobe. It differs from the Spanish, inasmuch as it is round-bodied, and shorter on the leg. It is altogether more squat and dumpy in appearance. They are excellent layers, and handsome enough to attract in the Various Class.

A KIND OF BANTAM (H. T. J.).—If you had not said the bird in question was a Bantam we should have thought it a small and faulty Golden-spangled Hamburg. It is probably the result of an experiment of crossing between a Sebright Bantam and a Golden-spangled Hamburg; and the bird in question takes more after the latter than the former.

EGGS FOR SITTING (A. S. B.).—They need not be excluded from the air, and will be equally good, or rather much better, if left in the nest. No other proof need be quoted than that you mention—"A stolen nest usually produces a strong brood."


BALDHEAD TUMBLERS (T. Hussey).—Whether blue, black, dun, or almond coloured, the head must be perfectly white, with an even edge all round where the white joins the body colour just below the chin. If the edge is uneven, it is said to be "slobbered." The flight feathers (seven to ten) in each wing must be white, and so must the tail, rump, thighs, and vent; pearl-eyed; and thighs clean.

HOW LONG BEES CAN LIVE WITHOUT FOOD (Anonymous).—Your inquiry as to the length of time needed to starve a bee to death is one we cannot answer, never having tried such an experiment. At all events, whatever be the distance to which you propose to send a stock destitute of food at this most important period of the year, we should ask you to consider how far it is worth the trouble. The Wax Moth (*Tinea mellonella*), or Gallery Moth, as some call it, is chiefly seen from April to October, flying only at dusk or by night, being of a whitish or brown grey colour. It is small, but of extremely active habits, giving the bees an infinity of trouble in guarding the entrance of the hive. Having once obtained admission, they deposit eggs amongst the combs; a small caterpillar shortly appearing, but increasing in size, and spinning around it a case of white silk, feeding upon the cells adjacent. As soon as it becomes a perfect moth more eggs are deposited, and in time destruction to the commonwealth ensues.

TAKING A QUEEN—WOOD FOR HIVES (Ignoramus).—The common practice before removing a queen bee from a hive is to fume the family, and seek her as the bees fall down from the effects of the smoke. In a bar-hive there is less difficulty; as, after fuming and removing the covers, the combs may be taken out and examined separately. The best wood for making bee-boxes is the more porous kinds, consequently mahogany is the worst. The thickness should not be less than from one inch to an inch and a quarter. The bars may be of half-inch deal.

SHELTER FOR BEE-HIVES (A Young Apiarian).—In the first line of our answer last week for "A wooden Bee-hive," read "Bee-house."

WEEKLY CALENDAR.

Day of M'nth Week.	Day of Week.	MARCH 20—26, 1860.	WEATHER NEAR LONDON IN 1859.					Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.							
20	Tu	Cardamine hirsuta.	30.328—30.069	54—41	S.W.	.19	4 af 6	11 af 6	13 5	28	7 30	80	
21	W	Sun's declin. 0° 27' N.	30.002—29.864	48—31	N.	.07	2 6	13 6	24 5	29	7 12	81	
22	Th	Tussilago petasites.	30.258—30.217	47—30	N.	—	v	14 6	sets		6 53	82	
23	F	Bellis perennis.	30.276—30.020	51—43	N.W.	—	57 5	16 6	44 a 7	1	6 35	83	
24	S	Callitriche verna.	30.016—29.991	53—45	N.W.	—	55 5	18 6	58 8	2	6 17	84	
25	SUN	5 SUNDAY IN LENT. LADY DAY.	29.986—29.960	58—44	N.W.	—	53 5	19 6	12 10	3	5 58	85	
26	M	Orchis mascula.	29.887—29.863	55—42	W.	—	50 5	21 6	26 11	4	5 40	86	

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 50.9° and 33.1° respectively. The greatest heat, 69°, occurred on the 24th, in 1858; and the lowest cold, 14°, on the 25th, in 1850. During the period 141 days were fine, and on 90 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

As the great proportion of greenhouse plants are now commencing, or are in active growth, constant attention will be required for the judicious regulation of temperature, and for the admission of fresh air in this fickle and ungenial weather, and in the supply of water to the roots, and atmospheric moisture.

BALSAMS.—Encourage the growth of them and other such tender annuals by potting them when the roots begin to eluster round the side of the pot.

CALCEOLARIAS (Herbaceous).—Shift on the young stock, keeping the plants well down in the pots, so as to bring the earth in the pots up to the lowermost leaves, to induce the plants to throw out fresh rootlets from the stem. Keep a sharp look out for green fly.

CLIMBERS.—Prune off superfluous shoots; stop or pinch out the tops of gross leaders, and keep them neatly tied and trained.

COCKSCOMBS.—To remain in small pots until they begin to show flower.

DAHLIAS.—Pot off cuttings as soon as struck.

Sow in heat seeds of stove and greenhouse plants.

STOVE AND ORCHID-HOUSE.

Attend to regular shifting, watering, and a free and healthy circulation of air, without draught, early in the morning to stove plants. Continue to cut down, disroot, and repot, as advised last week, those which have been flowering through the winter. To be then favoured with a bottom heat of from 75° to 80°, and slightly shaded during bright sunshine. *Calanthe veratifolia*, *Neottia picta*, *N. elata*, Phaius of sorts, some varieties of Stanhopea, *Zygopetalum Mackayii*, and other such Orchids that are now making their growth, would be benefited by an application of clear, diluted manure water occasionally; a kindly humidity to be kept up, and the shading to be in readiness for use during bright mid-day sun.

PITS AND FRAMES.

Sow tender and half-hardy annuals; pot off those already up; give air daily, and never allow the plants to flag for want of water. Pot off cuttings of Dahlias, and continue the propagation of Fuchsias, Heliotropes, Petunias, Verbenas, and bedding-plants generally.

FORCING-HOUSES.

BEANS (French).—Give them, when in a bearing state, a liberal supply of manure water, and see to keeping up a succession of them.

CUCUMBERS.—As soon as the frames are uncovered in the morning give a little air for an hour, to let the stagnant and foul air pass off, when they may be closed again till the day is further advanced. As soon as the principal shoots have reached the side of the frame, never allow any of the laterals to grow more than two joints before being stopped.

MELONS.—Those lately planted out to be encouraged

with a close, moist heat, to get them into free growth as quickly as possible. The plants that are fairly established to be kept cooler, admitting air at every favourable opportunity, to produce short-jointed fruitful wood. The shoots to be kept thin and regular, pinching out any that are not wanted. The night temperature not to exceed 65°, and air to be admitted as soon as the thermometer rises to 75°; but to be given very cautiously during cold winds. Prepare for raising plenty of young plants for succession crops, and endeavour to have them strong and vigorous by keeping them near the glass; to be provided, when they require it, with plenty of pot-room.

MUSHROOMS.—Collect materials for fresh beds, and give those that have been some time in bearing good soakings of manure water; sprinkle the floor and heating apparatus occasionally. The conditions of success are to have the materials for making the beds well prepared and sweet—that is, free from rank steam, and the spawn to be put in whilst the heat keeps regular and moderate, and the beds are coated over to keep it so until the spawn is well established.

PINES.—Give plants swelling their fruit plenty of manure water, and a humid atmosphere.

STRAWBERRIES.—They require plenty of light and air to set their fruit, when they may be removed without fear of injury to a stove, or any other house or pit possessing a higher temperature.

VINES.—If the Grapes are colouring, a free circulation of air, accompanied with a high temperature, will be advantageous. Attention to be given, where fermenting materials have been used for warming the borders, that the heat is not allowed to decline at present under the influence of the March winds. Attend to last week's advice as to tying, disbudding, &c., and proceed with the thinning the fruit in the succession-house as soon as the berries are fairly set. When thinning be as careful as possible of the bunches—neither pull them about with the hand, by which rust on the berries is frequently produced, nor with whatever the shoulders may be held up by at the time of thinning, as, by the twisting of the stalks, shanking is not unfrequently produced.

WILLIAM KEANE.

EXHIBITION OF HYACINTHS

AT WM. CUTBUSH & SON'S, HIGHGATE NURSERY.

It has been laid down as a general law by THE COTTAGE GARDENER, that whoever has a name for some popular plant, or plants, about London, will find it to his advantage to make a public show of it or them yearly, in flower, while the Horticultural Society were in the transition state from bad to worse, and from the worst to the pinnacle of fame and usefulness, to make such shows liberal, without ostentation, and to let the public in and out just as if the flowers were their own, in order that the safety of the flowers from hurt and harm might, that way, be secured with more certainty than by any police supervision. Last year we recorded the Exhibition of Hyacinths

at Highgate, and of Camellias at the British cradle of that family, the Vauxhall Nursery. This year we have resolved to send a commissioner to both places to report progress, and the lot fell upon your humble servant. He was there the first thing on the opening of the Exhibition, and found the progress to have been much more remarkable than he expected. Nearly double the number of Hyacinths which were on show last year, a large assortment of new kinds, and a rapid stride in the success of forcing. By dividing the merit, as I do my seedlings, into good, better, and best, and then to select a couple of dozens from the best portion, for a competition trial, anywhere between London and Edinburgh, and at both ends of the distance, I do not know any party who would be likely to come in more than second best at the trial, and it would not be a bad feather to be up to the third lower degree at such a contest.

The bulbs have all been covered with the mould in potting; the leaves are as firm as from the open air, and not much longer; the flower-stalks are not taller in the open air, but they are quite as thick as from the open ground, and the spikes of flowers are exactly as you would see them in a bed at the end of April. All the close-set ones are just as close as out of doors, and the lax, the free, and the medium closeness the same. These are the criterions, or the law, by which the Judges determine the merit and success of forcing the Hyacinth, without reference to individual sorts. But a second-rate Hyacinth which is forced in first-rate style will often look better than a first-rate one that is only of second-rate forcing; and in judging the kinds for public use, the jury would need that degree of practical knowledge which could clearly define the difference of merit between first-rate by nature, and first-rate after an unnatural treatment. Many years back I have seen selections of kinds made from forced flowers, not one-tenth of which were first-rate kinds by nature, only they looked best at the time, and neither the judge nor jury knew any difference. But the world is wiser now, and it is a hard matter, and a very responsible undertaking, to make up a list of selections from any class of plants, even for people far down in the country; and a list at random is a great wickedness in the eyes of a clear conscience. With these convictions I began early in the day to make up my notions, and it was four in the afternoon before I closed the book.

The best new kinds in their shades of colours are *Koh-i-noor*, a fine, large, dense spike of deep salmon colour. *Susannah Maria*, salmon rose. *Lord Cowley*, only remarkable for the colour of purplish-lilac, and being the first approach to a double flower of that rare colour. One-third or one-half of a purple lilac, and two-thirds or one-half violet blue, would make the true mauve colour, according to the brightness of the tints. *Sir Colin Campbell* is the best new, double, light blue among the new ones. *Belle Quirine*, single, pale flesh, large bells, and a fine thick spike. *Circe*, single, red carmine; very fine. *Desdemona*, reddish crimson; the same. *Florence Nightingale*, single blush with a deep stripe in each division; fine. *Lina*, very fine single crimson, and *Quintin Durward* the same, in a deeper shade of crimson; both are in the way of *Amy* and *Lady Sale*, the two best-known crimson reds. *Prince Alfred*, a very fine deep blue violet; this has been called mauve colour also, but it is nothing of the kind. *Lord Clive*, *Honneur d'Overreen*, and *l'Unique*, are three shades of mauve, and these three shades, with the double dark violet of *Prince Alfred*, would make a perfect mauve colour. *Prince of Wales* being the only true mauve colour among all the Hyacinths; but as this kind is so scarce yet, it will be some years before a mauve-coloured Hyacinth can be bought. Continental dealers are mad just now on mauve flowers, and neither treaty, free trade, nor protection, can save us from that malady, nor from being imposed on by false colours.

One of the last experiments on colour has given a natural standard, so to speak, with which to learn, or compare, mauve colour. If a handful of common household salt is scattered over a bright fire of Newcastle coals, or possibly any kind of coals, and a faint ray of sunlight is made to play on the flame, the most perfect mauve colour will be the result. On a dull day the colour will be too much violet, and with much sunlight it may be too purple. From a number of experiments I conclude we must have three distinct shades of mauve—a violet mauve, a purplish mauve, the nearest thing to lilac, and a lilac mauve itself.

But to the newer Hyacinths. Just buy *l'Unique* for 1s., *Lord Clyde* for many shillings, or *Honneur d'Overreen* for as many, and you shall have the nearest to purplish mauve. The *Verbena Lady Middleton* will give you lilac mauve, and for the present *Prince Alfred* Hyacinth when half blown will be the nearest to violet mauve; but even then it is too much of the violet. In *Cinerarias* one might often pick up mauve in parts of the petals, or rays, in some part of the flower; but no *Cineraria* flower that I have seen comes near to mauve all over the flower, and I expect mauve will be as scarce in Dahlias as blue itself; also in China Asters. But Geraniums and Verbenas will give the three degrees of mauve, and so may double Petunias and a few other flowers.

CLEAR WHITE NEW HYACINTHS.—*Gigantea*, a peculiar-looking flower, the difference being in the extra length and reflex of all the lobes or divisions of the flower; a fine thing. *White Orondates*, exactly like the original light blue Orondates; a beauty. *Seraphine*, a very good single white, with the faintest blush. *Snowball*, the best white, new or old, a splendid thick leathery substance, and pure ivory white. *Black Prince*, ditto, is jet black; very fine. Thus ends the newish and newest kinds.

THE BLUES.—I took in degrees of good, better, and best, and two or three in each degree, as they are numerous. Darkest blue, and when fully open a perfect black, *General Havelock*. Next deepest blue *Baron von Tuyl*, the favourite blue in the Experimental Garden. Next shade *Charles Dickens*. The best of the last, or light shade of blue is *Sir Colin Campbell*, a double flower; the other blues above him being single.

GREY BLUE, OR PORCELAIN BLUE.—The best in this tint is *Grand Lilas*, a most beautiful flower. The next in beauty is *Couronne de Celte*, and *Nimrod* next. The three are of equal merit; the degrees refer to their shades.

Argus is my own favourite of all the blue Hyacinths, or of all the blue flowers I ever saw—it cannot be classed in any line of other blue flowers. It is a single flower. I wish all Hyacinths were so—large bells, a strong spike; the flowers just at the proper distances on the spike; the tube, or outside bottom, is of the clearest indigo blue that ever was seen; the face, or flat end of the flower, is violet-blue; and the eye, or centre, is pure white, with the violet running into the white in pencilled stripes. *Argus* is sold for a mere song (3s.) in respect to its intrinsic value; and *Argus* will be a favourite with ladies for a thousand years after I am dead and gone.

PURE WHITES, in good, better, and best.—First, *Snowball*, aforesaid; second, *Madame Van der Hoop* (single), *Grand Vidette* (ditto), *Mont Blanc* (ditto), and *Talleyrand* (the same); and third, *Grand Vainqueur* (single), and *Don Gratuit* (double).

BLUSH.—First, *Miss Burdett Coutts* (single), inclining to a creamy blush; one of the best. *Elfrida* (single), same way; and *Lady Franklin*, the same, and more real blush. Second best, *Orondates* aforesaid, *Grandeur à Merville*, and *Cloche Magnifique*, three single ones in three running shades. Third best, *Tubiflora*, *Dolly Varden*, and *Grand Vidette*, also single, and in three running shades as they stand.

CRIMSON.—Three best, *Lina*, *Amy*, and *Quintin Durward*, all single. Four second best, *Robert Steiger*, *Lady*

Sale, Mdle. Rachel, and *Belle Quirine*, all single also, and the last the newest.

SALMON.—Best three, *Koh-i-noor* (double), *Norma* (single, and very rich), and *Cavaignac* (single ditto). Three second best, *Johanna Christina*, *Duke of Wellington*, and *Florence Nightingale*, all single.

With peculiar tints of blue *Lord Nelson* and *Bleu Mourant*; the former a violet-blue, and the other violet and grey. These two would come after *Argus* in running shades.

The darkest is the new one, called *Black Prince*, and at a little distance looks like the *Perilla Nankinensis* colour; the next is *Prince Albert*; and the last, *General Havelock*, when in its prime, but it opens a dark blue.

Solfaterre (single), *Konig van Holland* (ditto), *Bouquet d'Orange* (double), are the best three orange and crimson, as in some of the Ghent Azaleas. The first is the best and is very beautiful, the second follows it, the other is third best.

The best clear yellow is *Anna Carolina*; and the second best yellow is *Heroine*. The latter is tipped with green when it first opens.

The best double whites are *Prince of Waterloo* and *Tour d'Auvergne*.

The best double blues are *Comte de St. Priest*, *Laurence Coster*, and *Sir Colin Campbell*.

And the best of all the rest of the colours is the first kind in each case of the above arrangements.

The next question is, which is the best list for a poor man, who can only dive the depth of a dozen, or at the farthest stretch to the bottom of two dozen, always bearing in mind, that from 9s. to 12s. is the furthest pull he can give his purse for the first dozen; and not a fraction over a sovereign, if he takes as many as two dozen; that is, fresh, sound, plump-looking "roots" in the autumn. The price of flowering Hyacinths I never inquired after, as it may change yearly, owing to a very hard, or a very mild winter. Also, the time of buying—early spring, middle season, and late; it stands to reason that these things must rule the market, fix it how you may. But forty years' experience has proved the great economy of buying plants and roots by the dozen, or score, or hundred, instead of by dribs and drabs, which is the dearest way of all. Many of the Hyacinths in the following list are as old as I am, and as good as the best; the only difference is, they are not quite so fashionable, nor so fussy about the strain, or the tint, or the shining metallic lustre of this or that part of the tube, or bell, or limb, or lobes of the limb, or density or laxity of the said bells, or individual blooms on the flower-scape,—the fashionable fancy name for the flower-stalk of all bulbous plants. Changes of opinion on one, or two, or several of these points, constitute the fashion at the time; but fashion can never hurt, or reach the natural beauty or perfume of a Hyacinth, or any other flower. Therefore, this selection of the very best kinds, including old and new, which are remarkably cheap as compared with the dashing and peerage ladies, and the gallant namesakes in the lists of high-priced selections.

Double Red.—*Waterloo* and *Bouquet Tendre*.

Double White.—*Prince of Waterloo*, *Tour d'Auvergne*, and *Don Gratuit*.

Double Blue.—*Laurence Coster* and *Comte de St. Priest*.

Single Red.—*Amy*, *Monsieur de Fæsch*, *Lady Sale*, *Madam Hodson*, and *Robert Steiger*.

Purplish-Mauve Colour.—*l'Unique*.

Single White, very good old sorts.—*Elfrida*, *Grand Vidette*, *Grandeur à Merville*, *Victoria Regina*, *Tubiflora*, and *Voltaire*.

Single Blue.—*Baron von Tuyl*, *Charles Dickens*, *Grand Lilas* (extra), and *Orondates*.

Single Black.—*Prince Albert*.

Single Yellow.—*Heroine*.

The whole of these twenty-five sorts could be bought

for £1, or a selection of one-half of them for 12s., and from what has been explained to me by Mr. Cutbush and his foreman, this time, and last year, added to my own "*old world lore*," as Mr. Rivers would say, I pledge my word that every one of them is as good as I say it is, and that a duchess might be proud of the lot, if the "roots" were well forced. That reminds me of some most amiable ladies who, to my own personal knowledge, have the very notions of a duchess in matters of taste and fashion, but cannot go to the expense. For them, and for others who may understand my meaning, the following short list is made on purpose; and with a careful hand at potting early in September, covering the bulbs in the pots, and plunging the pots and covering them till they were full of roots, and then not to hurry the bulbs too much in forcing; they, the plants in bloom, might look even better than those of the duchess after all.

Single Yellow.—*Anna Carolina*.

Single Blue.—*Argus* and *Grand Lilas*.

Single White.—*Lady Franklin*, *Madame Van der Hoop*, and *Mont Blanc*.

Single Purple-Lilac, or Purple Mauve.—*l'Unique*.

Single Red.—*Queen Victoria*, *Mrs. Beecher Stowe*, *Circe*, and *Desdemona*.

Double Red.—*Susannah Maria*; and those who have higher notions of their conditions of life, must ask for the 7s. 6d., 10s. 6d., and 21s. sorts, and take none from my list except *Argus*, *l'Unique*, and *Anna Carolina*, the finest blue, the strangest colour, and the best yellow. But every one I have named, and hundreds besides, can now be seen at this early Exhibition, by Mr. Cutbush, of Highgate, to which the "Favourite" omnibuses go from all parts of London; and from the Houses of Parliament members could, each, ride to Highgate, for the small price of one penny per mile, and that distance is six miles.

EARLY TULIPS.—The early Tulips in great numbers for setting off the Exhibition, are of the very best kinds for early forcing. The best of them were—*Cottage Maid*, as gay as could be, rosy pink, and a clear healthy white skin in stripes; *Bruide Van Haarlem*, white and red striped; *Scarlet Duc Van Thol*, and *Vermilion Brilliant*, these the crack ones. The following very good—the three *Pottebakkers*, yellow, white, and striped, and the yellow and white *Duc Van Thols*.

Then there were whole rows of POLYANTHUS NARCISSUS, of which *Soleil d'Or*, *Grand Monarque*, and *Double Roman*, are the three best known, and most generally forced, the earliest; but the old *Bazelman major* was here the best of all the whites, and *Soleil d'Or* the best of the yellow ones.

Then there was a front row all round one side of Crocuses in yellow and white kinds alternately, and on the opposite side an entire edging of upright Mignonette in pots; and on the middle or centre stages were forced Geraniums, as *Crimson King*, *Blanche Fleur*, and *Alba multiflora*, six pots of each of these two were put into the stove on the 1st of December, and *Blanche* was in first, and on the 13th of February, the other a few days later.

Old gardeners know, or knew, five-and-twenty years back that *Alba multiflora* might be plunged in the front row of a Pine-pit in October, November, or December, and would stand Pine Apple top and bottom heat the whole winter without looking any more drawn than if it were in a common greenhouse; and *Blanche Fleur* seems as if on purpose to have been made for growing in winter, like many bulbs—say from the end of September to the end of May, and to rest all summer; that is exactly its nature as proved in the Experimental Garden.

I saw there, for the first time, evidence establishing a new fact, that certain of the fancy strain of Geraniums are capable of being so managed as to bring them in as early forcers on equal terms with *Alba multiflora*, *Blanche*

Fleur, and *Crimson King*, and the fact deserves the best attention of country gardeners, and of all those who force early for the market.

The old treatment of *Alba multiflora* applies equally well with the following kinds of fancy Geraniums for early forcing—namely, *Princess Alice Maud*, *Jenny Lind*, and *Madame Sontag*; and for second early forcing, *Evening Star*, *Formosissimum*, *Celestial*, and *Jenny Noy*.

The principal spring flowers which made up the rest of this Exhibition were, Cyclamens of sorts, Heaths, Epacris, Cytisus, *Deutzia gracilis*, Camellias of sorts, of which *Double White*, *Fimbriata*, always catch the eye with such kinds as *Albertus*, *Naciniana*, which is between *Saccoa nova* and *Elegans*, *Imbricata*, *Coronata alba*, with stripes, and several others of the best marked stamp; *Rhododendron calcatum*, several Azaleas, and *Azalea amœna*, very gay; also, a fine large specimen of *Rhododendron Russellianum* in one mass of bloom, Cinerarias, and Dielytras.

The Pelargoniums are remarkably fine, the bedding Geraniums the same. Immense quantities of *Tom Thumbs*, *Lady Middleton*, and variegated kinds, *Dandy* among the rest, *Golden Chain* and *Lady Plymouth*; *Modestum*, a unique-looking sort said to be very good.

The *Wellingtonia gigantea* at Messrs. Cutbush's will soon vie with the steeple of Highgate church, as a landmark for the natives. The large Hollies, Bays, Evergreen Oaks, Roses, fruit trees, and nursery stock throughout never seemed in better condition, and, better than all, there is an active trade.

D. BEATON.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(Continued from page 355.)

MANGOLD WURTZEL.

This is seldom so good on a chalky soil as on a loamy one; but on light sands it does well, provided the season is a showery one; the plants are also more ready to come up on this soil than on a rough, stiff, hard one. The *Globe* variety of Mangold is better adapted to dry situations than the "long red kind." Sow, thin, and store away as previously described.

POTATOES.

In some cases these might be planted in the autumn. At all events plant early, and, as before said, only the early kinds. Take up, and store away as soon as you can, in order to allow another crop to follow with as little delay as may be.

PEAS.

Instead of the winter Bean recommended in the farming for the stiff land, sow *Maple* or common grey Peas, which will be very useful for the pig. Sow about the end of November, or any time up to the 1st of March;—the end of November is, however, quite soon enough. Hoe the ground in April; and when the crop is removed let the ground be dug, and another crop, as Turnips, at once sown, adding manure at the same time—or, if the season be dry, some manure water will be equally useful.

LUCERN.

This may be omitted if the Saintfoin answers; as the latter, being a perennial plant, will continue in use for several years. Nevertheless, if Lucern is wanted, let it be sown as described before.

WINTER TARES.

These answer admirably on a dry soil, and must be sown whenever there seems to be a want of green fodder for spring use. Sow in November broadcast; and contrive to use the whole in a green state, as it makes only

indifferent hay, and it is not worth the amateur's while to bother with a small quantity for seed.

GRASS.

This accommodating herbage is as useful on a dry soil as on a damp one; only by a little artificial assistance it may be rendered more productive than it otherwise would be. Sow a little Trefoil, and a larger share of White Clover with the Grasses than for the heavy land; roll as often as convenient, and give as liberal applications of manure water as can be given. For this purpose the cesspool, to be hereafter described, will be of great service; and each season a little dressing of some compost, not too strong, will be of great service as tending to keep moss down, which in some places is very troublesome on such a soil. Eradicate all Docks, Nettles, and Thistles as they appear; and such plants as Yarrow are also little better than weeds in meadow fields. In dry pastures it is customary to let the herbage be a good length before the cattle are turned into it. There seems no particular reason for this; only when it is once made very bare, and dry hot weather sets in, its growth is often entirely suspended for a time. It is during those periods that the manure-water-cart is so efficacious; but let this be used as much as possible in dull weather, or in mornings and evenings, and not when the sun shines fiercely.

CARROTS.

This crop is often very productive on the yellow loams which overlie some of the chalks in Hertfordshire and Bedfordshire. It also succeeds well on the sandy soils of the latter county. Deep cultivation is the most important item to insure success; and the plants being duly thinned after sowing, a good-sized root is the result. The *White Belgian* is the most hardy; but the *Long Orange* is also a productive Carrot, and equally a favourite for milk cows.

DRUMHEAD CABBAGES.

I cannot by any means advise these to be given to the milk cow, as they flavour the milk; but they may be given to anything that may be put up to fatten—I only mention them here as a useful crop, often grown where farming of a miscellaneous character is going on. If it should be determined to plant any, let them stand two feet and a-half apart each way. Sow the seed in September, otherwise very early in the spring and on a favoured spot in the garden; but in a general way there are parties who raise such plants in large quantities, and sell them at a cheap rate to the growers.

HOLCUS SACCHARATUS.

This requires to be better known before it can be positively affirmed to be a good green crop; but if cattle are fond of it, certainly it produces abundance of stalks of a sweet and apparently tempting character.

TRIFOLIUM INCARNATUM.

As a green crop for only one cutting this is often preferable to Tares; but the custom of the neighbourhood may be consulted as to its adoption. It is gaining ground, and is now extensively grown on stiff lands as a green crop for horses.

J. ROBSON.

(To be continued.)

RIBBON PLANTING.

I PROPOSE planting a ribbon "Crystal Palace style"—viz., with Scarlet Geraniums, *Purple King* Verbena, and *Tropæolum elegans*. Would you tell me how far distant the rows should be, and how far the plants in each row should be from each other, and what would be the most telling width for each row?—R. W. P.

[The right way to plant these three kinds ribbon fashion, is to allow the same breadth of the border to Scarlet Geraniums

and *Tropæolum elegans*, and not quite so much to *Purple King*. If *Purple King* has fourteen or fifteen inches in breadth, the other two to have from thirty to thirty-six inches, or say in that proportion. The distances always depend on the size of the plants. Small plants of all the three should stand a foot apart every way, and stronger plants wider in proportion. It is the best plan to plant close at first, even if some of the plants must be rooted out at last.]

FRUIT TREES IN POTS.

I HAVE had some thoughts of trying a few Peach, Nectarine, and Apricot trees (say four of each), in pots managed as follows:—Trained in the single-stem style (I forget what Mr. Rivers calls it). I propose to keep them in my greenhouse all the winter, and about the end of March to put them out of doors daily, returning them to the shelter of the greenhouse at night until all danger of frost is over, when I should plunge the pots in a south or west border until winter, when I should again remove them to the greenhouse, which I ought to state I do not heat unless it becomes necessary to do so, to keep out "Jack Frost." Please say whether there is any probability of my succeeding in getting fruit, and if not, can you suggest any modification of my plan which might secure me a moderate share of success?—R. B. P.

[There is no doubt about the success of your plan. All that is required is, to protect the trees when in blossom, and while the fruit is being formed; and when these are secured, the fruit will ripen perfectly against a south or south-west aspect wall.]

THE RHODODENDRON.

It certainly is a fact, that there is no evergreen hardy shrub that combines so many good qualities as the Rhododendron. The habit is good, the foliage is beautiful, the flowers are handsome, and it is hardier than any other evergreen. It will grow almost anywhere—on the highest hills, and in the lowest valley, in the full blaze of the sun, or in the deep shade of the forest, in the fresh, clear air of the country, or near the large smoky town. It is easily propagated, and may be purchased at as low a price as any other shrub, and in any quantity. Its blooms have every shade of the rainbow, excepting, perhaps, clear blue. Many of the species reach almost the altitude of trees, whilst others creep close to the ground. Possessing all these good qualities, there is no wonder that it is more grown than any other shrub, with the exception of the Rose. Yet its culture, to bring it to perfection, is not universally understood. I propose, therefore, to devote a paper or two on this subject, and in order to render the subject more interesting and useful, I shall divide it into the following heads:—

- 1st. Soil.
- 2nd. Grouping and Planting.
- 3rd. Summer Culture.
- 4th. Winter Culture.
- 5th. Pruning.
- 6th. Propagation.
- 7th. A selected list of hardy kinds, species, and varieties.

Soil.—The very best soil for these plants is sandy peat on a cool bottom; but that cannot always be procured, or if it could the cost of carriage would render it too expensive, excepting, perhaps, for a few new dear varieties. One comfort, however, is, that they will thrive well in any cool, loamy soil not actually wet, or too dry in summer. I have formed a compost of loam, decayed leaves, two-year old cowdung, and sand, in equal parts, well mixed and laid on a foot thick, on a subsoil of clay or heavy loam.

I had once the charge of a garden in which there was a plantation of Rhododendrons. Every winter this plantation, at the request of the owner, was manured with night soil mixed with sawdust, and just pointed in with the spade. The soil was a heavy loam, and this strong manure liberally applied did them no harm, but, on the contrary, caused them to grow luxuriantly, many of them making shoots a yard long, and strong in proportion, and producing large trusses. The place was near a large factory, which gave us the supply. I, however, do not recommend this manure, I should prefer a dressing of well decomposed cowdung in preference. The worst soil for them is one on limestone; wherever that abounds (if these shrubs are planted) it ought to be removed eighteen inches deep, and the

place filled either with sandy peat or the compost described above. Another objectionable soil is a loam thrown up in banks. This last dry summer I have seen large specimens completely killed on such banks, evidently by the want of moisture to the roots. Some that I had under my charge in such a situation were drooping very much. I had the soil removed near each bush, and formed into a hollow, and that hollow filled with water two or three times a-week. The shrubs showed their gratitude for this attention by immediately rearing up their heads and growing well afterwards. They have also made a few flower-buds. This is, indeed, an extreme case: we may not have such another long drought for years. Had these trees been in sandy peat they must have perished.

Had I the opportunity of procuring moss in quantities, I should have laid on a covering of that non-conducting material. I know from experience that nothing is superior to moss for a protection from drought, and frost also. One good watering with a moss covering does more good than a dozen without it. This I have proved over and over again, not only for Rhododendrons, but also hardy Azaleas, Kalmias, Sedums, hardy Heaths, and other plants usually classed under the head American.

Reading over the above remarks we may come to the conclusion, in respect to soil, that where sandy peat is either natural to the place or easily procured, the intended cultivator of these charming shrubs ought to use it liberally. Where this soil is scarce, then make the compost of loam, leaf soil, cowdung, and sand, thoroughly mixed together; or, again, if this compost is difficult of access, then plant them in a fibry loam mixed thoroughly with sand, and, if possible, lay on a covering of moss fastened down with neat rods and hooks. Whichever soil is used, it ought to be well forked and laid up in ridges for a winter's frost to pulverise it. The roots of Rhododendrons are very fine and very numerous; hence heavy lumpy soil is injurious to them.

Having duly prepared the soil, then prepare for the next proceeding—viz.:

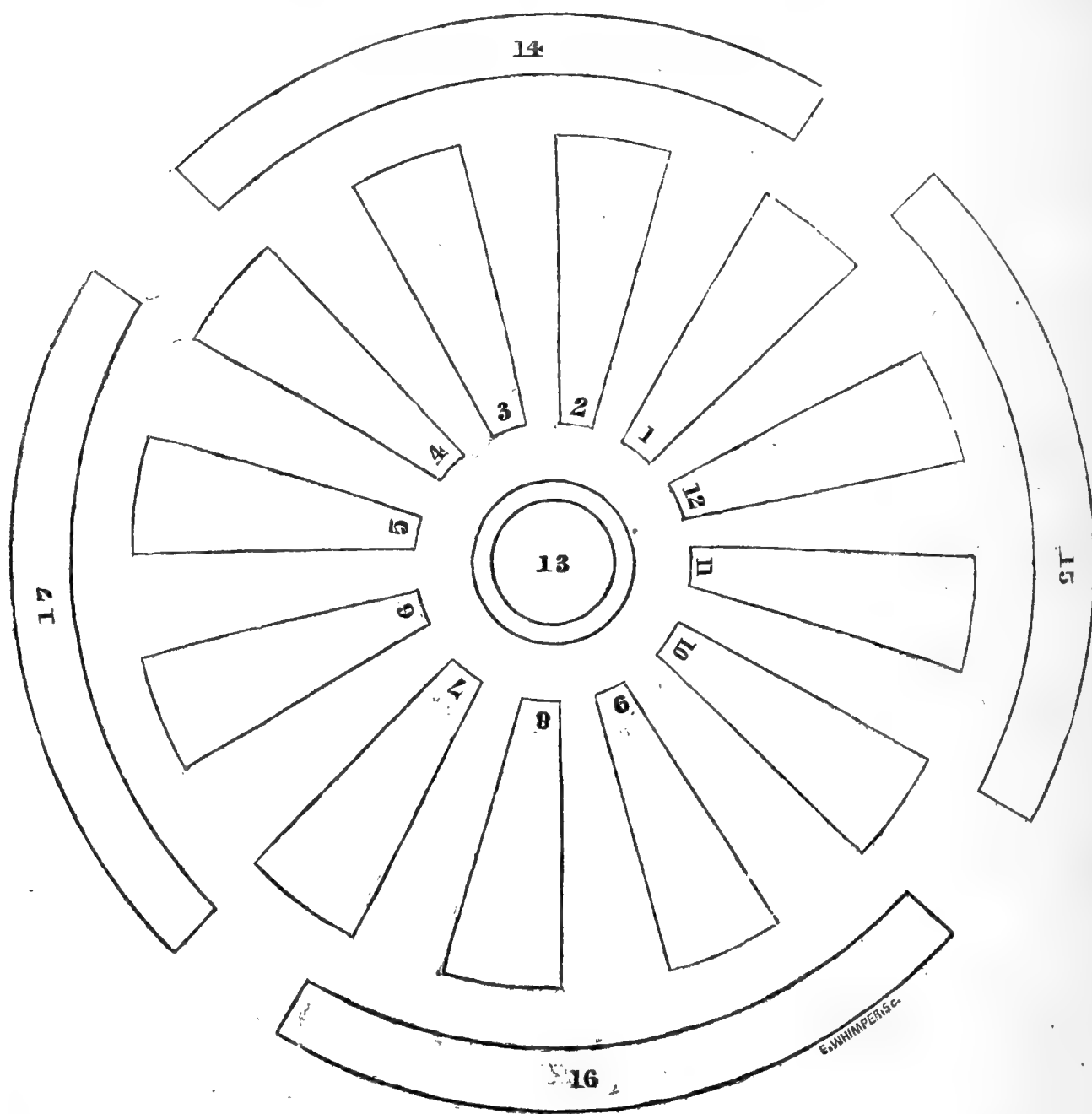
Grouping and Planting.—By grouping I mean the best arrangement as to height and colour. It is quite true that no planter, however careless or thoughtless he may be, would plant a dwarf-growing variety behind one of a tall habit; but he might err in planting a regular mixture of colours in a given space, and repeat that mixture throughout the whole plantation. This mixing is the great error of most planters; but the truth is, a regular uniform mixture is no variety. The colours and probable heights of each variety ought to be known, and with a prophetic eye the planter ought so to arrange them that the colours shall harmonise with each other. Now, in this tribe of shrubs we have various colours, beginning with pure white, then blush, next pink, then rose, then deep rose, next lilac, light purple, dark purple, then crimson, dark crimson, light scarlet, and bright scarlet. Possessing all these colours with plants that grow various in height, what a splendid show they would make if arranged in the ribbon style in rows on a long border, or planted in beds with the highest colour in the centre, surrounded with the next shade, and then a shade lighter, and so on to the margin. And this grouping might be accomplished easily, for such growers as the Waterers, Baker, Standish, Noble, Jackman, Fisher & Holmes, &c., could furnish at a moderate price, plants of the required colours and height in large numbers. Why is this not done? Public gardens ought to set the example. Kew, for instance, the Crystal Palace, and especially the to-be-famous new gardens at Kensington. A very moderate space devoted especially to this arrangement, would be creditable to the managers, and a source of instruction and delight to the public. I trust some of the readers of THE COTTAGE GARDENER that have influence in such gardens, will try to have shrubs so arranged as to be rich in masses, and not have them planted in the higgledy-piggledy style hitherto practised. The planting of these shrubs is easy enough, they lift with good balls, and, of course, are sure to live; but let me warn the planter against shallow planting. If the ground is freshly dug or newly formed it will settle considerably, and if the ball is placed just level with the new surface that ball will prevent its sinking with the ground between the plants, and then the ball, when dry weather arrives, is exposed to its baneful influence, and one-half or more of the delicate fibres perish. To avoid this evil the planter should take care that the balls are fairly covered at least two inches with the fresh soil, and then lay on a coating of my favourite moss. So planted and covered the plants will grow admirably, almost, if

not quite, as well as those that have never been moved. The season for planting is from September to April. I prefer the early autumnal months, for then the plants make new roots before winter sets in, and are ready to push into active growth as soon as the warm weather impels them to do so. As these plants lift with large balls, they may be moved safely at any size, and sent safely to any distance, if the roots are packed in damp moss. So that if expense is no object, an immediate

grand effect may certainly be achieved at once, and permanently. The situation for a collection of Rhododendrons should be chosen, if possible, in a position neither too much shaded nor too much exposed to prevailing winds, in order to obtain the finest display of bloom, for if subjected to a continual strong blast the plants would be injured. Let this point, also, then be considered and act accordingly.—T. APPLEBY.

(To be continued.)

FLOWER-BED ARRANGEMENT.



Yellow Calceolaria.—No. 1, 7, 4, 10.
Scarlet Geranium.—Nos. 2, 5, 8, 11.
Purple Verbena.—Nos. 3, 6, 9, 12.

Golden Chain and Flower of the Day Geranium.—No. 13.
White Alyssum.—Nos. 14, 16.
Variegated Mint.—Nos. 15, 17.

N.B.—Pale blue Lobelia round the centre bed (13).

I ENCLOSE you a plan of my garden, as I had it planted last season. I found it effective, but I wish to have a change, and some newer and still more effective way of planting the garden, if you could suggest what I should plant. I kept the outside borders clipped low. I thought the purple Verbena became washy after rain.—HARRIET.

[The beds in this plan were coloured and looked exceedingly well on paper; but like the colours of all bedding plants, when given in the lump, or mass, and without the mixture of the green of the leaves, is extremely liable to deceive the eye. The plan is a wheel with twelve spokes, of three colours matching in opposite pairs; but, in reality, *Purple King* Verbena between *Tom Thumb* Scarlet Geranium, and *Yellow Calceolarias*, mixing

in three different shades of green leaves, is a brown black, not a purple; a jet black would be beautiful there, but *Purple King* is a seedy black, between red and orange. A violet purple, as is on the plan, would be charming indeed, but we have no bedding plant to give such a tint. *Mrs. Holford* Verbena, instead of *Purple King*, in these four beds, would give, absolutely, the very idea of the designer of this style of planting. The rim of the wheel, 14, 15, 16, 17, and the axle-box 13, might be of any other plants, or colours, without doing violence to the pattern. We highly recommend this plan for where it can come in without reference to any other part of the flower-beds in a garden, and twelve kinds of Verbenas, or twelve kinds of bedding Geraniums, or six of one and half a dozen of the other might be planted for a change.]

DREG AS A MANURE.

HAVE you had any experience in using "dreg," the refuse after the distillation of wash made from malt, as a "liquid manure?" It is like clear ale, with merely the *spirit* out of it.

Having thousands of gallons of it weekly at my disposal, I imagine it must be a good manure, and might be applied with benefit to all plants. I mean to experiment with it, but before doing so I shall wait your reply. It is to be obtained here at 1s. for as much as a horse can draw.

Should fruit trees and Vines in pots be annually root-pruned and repotted in their orchard-house pots? or, having rested in a dry state, will top dressing be enough as recommended by Mr. Rivers?—LANGHOLM.

[We have had no experience with "dreg" as a liquid manure; but as it contains all the constituents of malt soluble in water, and not convertible into spirit, we have no doubt that it would be beneficial. It would be improved by mixing with it stable drainage, or house sewage strong in ammoniacal constituents. We shall be much obliged by your communicating to us the results of your experiments. Vines in pots do not require root-pruning, but merely a removal of some of the old soil, and replacing it with very rich compost.]

DUNN'S SOLID MARKING-INK PENCIL.

WE consider this the most effective invention that has yet been offered to the gardener for marking his plant-labels. The writing is black and indelible; the labels requiring no other preparation than previously rubbing them with a damp finger. The label may be either of wood, parchment, bone, or zinc. The pencil requires no cutting, but the writing-points are raised or lowered in a mode similar to those in Mordan's lead-pencil cases. It is equally efficacious for marking linen, and when our readers remember the trouble and difficulty of obtaining clean and efficient quill pens for applying marking ink, we think that they will not be slow in patronising "Dunn's Solid Marking-Ink Pencil." The case and point are only eighteenpence.

We have no doubt Mr. Dunn will advertise this very clever and useful invention, and in the meantime we publish the following letter we have received from him:—

"At last I have the pleasure to forward you one of my Solid Marking-Ink Pencils, which after eighteen months' hard work have been brought to their present form. The Cedar cases in which I at first tried them proved a sad mistake; the oil contained in the wood softened the points and caused the pencil to block up, and this I did not discover until I came to make them in bulk. It is a curious fact, that in the Cedar cases the oil will not act on them if carried in the pocket; whereas, if the same point is put in a Cedar case and left in a cool place, the oil condenses on the point and softens it in the course of two or three days.

"The white wood case contains no oil, and some I have had filled in for three months are as good as ever. I tried an old point the other day, one of the first I made fourteen months ago, and found it much improved by age. This was very satisfactory, as some of my chemical friends predicted a decomposition of the points; but facts prove the contrary.

"No preparation is required for marking sticks, &c.; the slightest damping is sufficient, and they will mark dry; and if you want to fix the writing at once, hold the stick to the fire just below scorching heat.

"It will also mark permanently on linen, &c., dry, or slightly damped with water or the tongue, but not so black as with the tartrate of potash. I could put them up in white wood as a common pencil, but there is a great objection to cutting them—they mark the thumb, and the cuttings mark anything they fall on. I have also tried to cheapen them, by using a common slide, but they do not work so well as with the screw, and as this is a patent case, I am obliged to pay a high price for it; but you will understand they refill for 1s. I send you a specimen written on calico, which has been washed several times."

THE DANDELION: A SUBSTITUTE FOR LETTUCES.

SCARCITY of Lettuces this spring is likely to be felt, from the effects of an unusual frosty and wet winter. The loss, however, may be fully compensated by substituting the Dandelion. The

writer regrets that he has not before recommended its cultivation on warm borders for blanching, and for early supplies, as Endive is commonly blanched; but now hastens to introduce the free use of it as a safe and invaluable medicinal salad, being able to judge of, and pronounce, its salutary effects upon his own impaired constitution, more particularly in the removal of heartburn, indigestion, costiveness, rheumatism, chronic secretions, and indolence of the liver, together with other sad symptoms arising from it, such as loss of sleep, despair, or melancholy irritableness, and other such like false mental forebodings, all arising from the inactivity of the liver.

As soon as spring dawns, and fresh animation appears in the plant in warm situations, and a similar revival is naturally required in the human system, free use of the plant may be resorted to with perfect success and safety, and happy results will follow. Any one may indulge his appetite with a large plateful of the plants at a meal, stalks and all, down to their very roots, shreaded very fine, especially when the masticating powers are impaired. Let them be eaten with vinegar and sugar, which take off the bitterness of the plant. The writer prefers Raspberry vinegar, or some other made from home-made wines of any kind of fruit. Many hearty meals of it he often enjoys with the accompaniment of nothing more than a lump of good wholesome bread and a pint of pure water, and thus, thanks be to God, his former good health is restored.

A decoction of the root of Dandelion, either when it is green or dried, is admitted an invaluable beverage in dispelling diseases of the liver; but this need not be resorted to, except in winter, when the plant is dormant.—ABRAHAM HARDY, *Seed Grower, &c., Maldon, Essex.*

A CHAPTER FOR THE COTTAGER.

STANDARD AND WALL FRUIT TREES.

FRUIT TREES.—In a former chapter, page 259, the subject of cottage-garden fences was dwelt upon, and likewise that very common accompaniment to the garden the "cesspool." That the one is a necessary appendage and the other a sort of necessary evil will be generally granted. I now come to another feature in the garden of a more pleasing kind—the cultivation of fruits, leaving the subject of the piggery and outhouse for another time, especially as the season for planting or pruning fruit trees is fast passing away; and as fruit trees in some shape generally form a part in every garden, and on some occasions a little advice on their treatment will be of great service to the cottager, this chapter is devoted to that purpose, and I shall suppose the cottager to have just entered on his holding, the garden possessing a few old worn-out Apple or Pear trees, with Gooseberry or Currant bushes mixed with them, but struggling to attain the same altitude, while the centres are devoid of leaves or young shoots of any kind. Against the cottage-wall, perhaps, are the remains of an old Plum tree; the only branch upon it of any consequence, having been allowed to hang dangling from the wall, has assumed a sort of curved bushy-headed appearance; the tips lashing against the windows on windy days or nights; or, perhaps, if it grew higher, its disposition to remove slates or tiles on windy occasions creates much annoyance. Most of these remnants of bygone days, or of neglect, I would entirely remove; for although old Apple and Pear trees will bear cutting down and grafting afresh, they so often die three or four years afterwards, that I would not advise their being trusted to. Young trees in a general way are cheap enough, and there is something more to be hoped for in a young tree than in an old one; but when trees have been allowed to run into a rather wild condition, judicious cutting will be of great service; or when the kinds are known to be indifferent, and the trees healthy and not too old, they may be headed down and grafted with more esteemed varieties; taking care in heading down not to do so too severely, but to leave plenty of forked heads, and if not thicker than the handle of a garden rake so much the better. This heading down to be performed early in the winter; but the grafting may be deferred until late in the spring, of which I will speak hereafter.

Too great a number of large fruit trees is always objectionable where vegetables are also wanted; but a few on the north side of a garden is always advisable, and if placed so that their tops might overshadow a walk, or it might be a thicker fence, or the piggery, the spaces occupied by these necessary adjuncts to the garden might be rendered as fruitful as any other portion of the ground; and by having the trees on the north side of the garden the sun will have more power to shine on the south side of it.

Bush fruits, as Gooseberries and Currants, might line the sides of the walks, the plants being about five or six feet apart and three feet from the edge. Of the kinds of fruits suitable for a cottage garden, those which answer best in the immediate neighbourhood may be regarded as most likely; but if the district be not much of a fruit-growing one, some further advice will be necessary; and those enumerated in the following select list have a wide reputation for their general good qualities as open standard trees for ordinary situations, as I purpose having fruits of other kinds for the wall.

APPLES:—*Winter Queening*. A pretty fruit, keeps and bears well.

Yorkshire Greening. Excellent keeper, and good kitchen fruit.

King Pippin, or *London Pippin*. Excellent for table or kitchen.

Court of Wick. Like the last-named, may be used both ways.

Wellington. Large fine kitchen fruit, tree bears well.

Keswick Codlin. Very early and abundant bearer, but will not keep.

Dumelow's Seedling. An excellent Apple.

Barcelona Pearmain. A good-keeping, useful Apple.

Besides the above there are scores of other good kinds; but it is well to caution the cottager that some of the kinds in most repute a few years ago are next to useless now, as the *Ribston Pippin* and *Hawthornden Apple*, *Jargonelle Pear*, and some others.

PEARS:—*Ne Plus Meuris*. An excellent winter Pear.

Marie Louise. A good autumn Pear.

Williams' Bon Chrétien. Ripens about September.

Beurré d'Aremberg. Good useful Pear.

Duchesse d'Angouleme. Ditto.

Pears are very numerous, but do not answer well on every situation, and are useless in cold bleak places.

PLUMS:—*Diamond*. A hardy good-bearing Plum, dark colour.

Washington. Pale-coloured fruit.

Golden Drop. Yellow, in much esteem for preserving.

Goliath.—A large coarse Plum, good bearer.

N.B.—The *Green Gage* is unquestionably the best Plum in cultivation yet; but the tree is rarely healthy, and gives evident tokens of being worn out.

FRUITS ADAPTED FOR A WALL.—It is not so easy to give advice on this head; for there is so much difference in situations, and tastes and habits differ so much, that it is no easy matter to give advice to all. But I will suppose the situation to be a very dry one, and the cottage to face the south, with a large gable end towards either the east or west, or both. This gable end presents the largest amount of wall to be met with, and a good situation for a trained tree; and as the cottager will be anxious to make a few shillings of the produce of anything out of the usual way, I should by all means advise him to plant a *Morello Cherry*. On the dry stony ground of many places near Maidstone this fruit attains a degree of perfection I have never seen it do anywhere else; and not a mile from this place a large tree of this kind covers the whole gable end, and is making its way along the sides of a cottage. The occupier of it, I believe, pays his landlord 26s. a-year extra rent for this tree, and prunes and manages it himself as well. That it affords a fair return may be inferred, or the bargain would have been given up. *Morello Cherries* are certainly not exactly the most useful fruits to the cottager; but if he can sell them on an average for a shilling a-pound, and his tree prosper, he will often make a little money that may be of service in another way; but if his situation be a sheltered very early one, a good tree of the *Mayduke Cherry* may produce him fruit equally valuable as the *Morello*, but unless the *Maydukes* be early they are not of much value. Equal in importance to either of the above, and often more valuable, is the *Apricot*; which will do pretty well on the east, south, or west aspect, but in a general way it prefers a damper soil, a strong loam. And the same remark holds good with the *Peach*, *Nectarine*, and *Plum*—not that any of these like a soil saturated at all times with moisture; on the contrary to that, they like it firm, but not so dry and stony as the *Morello Cherry*. A good, sound, loamy bottom with a dry surface soil suits the *Peach* best, and this tree has the advantage of thriving near the sea-coast better than most others; but the proper management of a *Peach* involves a greater amount of nicety than that of a *Morello Cherry* or *Apricot*, and being more subject to disease, I would rather advise the others being grown than the

Peach. The fruit of the latter is also not so saleable an article, while *Apricots* are always in demand.

The *Vine* is a general favourite in some districts to cover the front of a dwelling, and very often the whole of the roof is covered too. Some rather strong timbers are laid up and down on the roof, and about six feet apart; and a piece of iron fixed to their top ends and bent like the letter **L**, goes over and hangs to the ridge; strong laths are nailed lengthways to these about a foot or more apart, and the *Vine* is often trained over the whole roof at the distance of six or eight inches from it. Generally speaking, however, the *Grapes* so grown are less valuable as a marketable article than the *Cherries* and *Apricots* before noticed; and unless the cottager can make good terms with some one fond of making home-made wine he will not receive much for his crop. But the *Vine* has the very useful property of being easily managed, and its pliable shoots accommodate themselves to any shaped space that the architecture of the building leaves available. The *White Muscadine* variety is the best in an ordinary way, but some other kinds have been highly spoken of. But it is only on fine dry soils that the *Grape Vine* ripens its fruit well; and even in such advantageous circumstances a fine season is also necessary. A cold wet summer and damp situation will produce nothing worth caring for in the *Grape* way; that excepting in the favoured places alluded to, a good prospect of turning the crop to account, the *Vine* had better be substituted by something else. An *Apricot* or a *Plum* would do better service, or where appearance is a matter of importance, a *China Rose* of the common blush variety would answer the purpose better; but if the cottage-door be screened by a porch, the pillars of this serve a more suitable place for the *Rose*. But more will be said on this head hereafter.

J. ROBSON.

NEW OR RARE HERBACEOUS PERENNIALS.

As it is now a good time to obtain seeds and plants of the above, I think a few brief notices of the most interesting will be in season, and no doubt useful to many of our readers.

NEW HERBACEOUS PERENNIALS.

AQUILEGIA FORMOSA, var. ALBO VIOACEA.—White and violet.

A. FORMOSA TRICOLOR.—Three-coloured.

Two handsome new garden varieties. Sow the seed in April, in sandy loam, in boxes placed in a cold frame, and when the plants can be handled, transplant them in the borders in a similar soil.

AUBRIETIA GRANDIFLORA (Large-flowered Aubrietia).—A native of the Levant, growing three inches high and producing largish purple flowers; flowering in April and May. Culture the same as the preceding. Increased also by division.

DELPHINIUM CHINENSIS CÆRULEUM (Blue Chinese Larkspur).

D. CHINENSIS CÆRULEUM RUBRUM (Red and blue Larkspur).

Two beautiful varieties of a well-known perennial. The flowers of the latter are of a delicate sky-blue, spotted with red. Increased by seed sown in April; also, by division of the plants in spring.

DIANTHUS VERSCHAFFELTII (Verchaffelt's Pink).—A dwarf, hardy perennial, a hybrid between *Dianthus nanus* crossed with *D. arboreus*. Leaves narrow; flower single white with a crimson blotch at the base of the petals, eight or ten of which are on one stem. This may become a good bedding plant when more plentiful. Propagated by seeds, cuttings, and layers.

D. VEITCHII (Veitch's Pink).—Also a hybrid, with crimson and white flowers, growing a foot and a half high, with heads of flowers like the well-known Sweet William. Propagated in the same way as the preceding.

LYCHNIS HAAGEANA.—A handsome hardy perennial, with flowers of a rich orange scarlet, two inches across, produced in heads on a stem one foot and a half high.

L. SIEBOLDII (Siebold's Lychnis).—Like the preceding in habit, but with pure white flowers. Both propagated by seeds and division.

PENTSTEMON JAFFRAYANUS (Jaffray's Pentstemon).—A hardy, half-shrubby, herbaceous plant. Native of California, introduced by Mr. Wm. Lobb. A compact bushy habit, and flowers of a bright blue with pink throat. Not so well known as it deserves to be. Propagated by cuttings under a hand-light in summer.

SAXIFRAGA PURPURESCENS (Reddish-purple Saxifrage).—A beautiful hardy perennial, with large leaves of an oval shape, and stems of flowers six inches high, supporting a branched sub-corymbose panicle of drooping flowers of a deep red-purple colour. Propagated by division in April or September.

SABBATIA CAMPESTRIS (Field Sabbatia).—Another beautiful hardy perennial from Texas, producing its pretty rose and yellow flowers on a stem six inches high, in August and September. No doubt this will prove an acquisition to the flower garden as a bedding plant. Propagated by seeds sown in a gentle heat in April.

STATICE ARMERIA PINIFOLIA (Pine-leaved Thrift).

S. ARMERIA MINUTA (Smallest Thrift).

The first has pale blue flowers and grows six inches high. The latter has red flowers, and is a tiny plant only three inches high. Both thrive best in sandy soil, and are easily propagated by division of the plant in April. Though not new, they are rare, and worthy of more extended culture.

TRITOMA UVARIA GLAUDESCENS (Rather glaucous Tritoma).

T. UVARIA GRANDIFLORA (Large-flowered Tritoma).

T. UVARIA SEROTINA (Late-flowering Tritoma).

Three new varieties of a fine old perennial, flowering in August and September. Though hardy they are better for the protection of a cold pit through winter. Mr. Beaton has made them familiar to our readers, and has treated on their culture to some extent.

The first has smooth-edged leaves of a glaucous green, and long spikes of orange scarlet blossoms, and is the first to flower.

The second, *grandiflora*, has broad leaves, rigid in growth, and arching in habit. It is later in blooming than any other variety, grows taller, and has spikes of flowers a foot long, and of a rich orange-scarlet colour.

The third, *serotina*, has the edges of the leaves rougher than the others, and of a dull, deep green. It comes into flower between the other two, and when fully expanded the blossoms are of a very rich colour.

For autumnal flowers we have nothing so handsome in the perennial way as the varieties of this species.

THALICTRUM ANEMONOIDES FLORE-PLENO (The double-flowered Anemone-like Meadow Rue).

This is a most beautiful hardy herbaceous plant, easily grown in sandy loam and leaf mould, yet so scarce that I can only find it in Messrs. Low's catalogue. It is a dwarf plant six inches high, producing its Anemone-like double-white blossoms in the early month of April.

I might have much extended this list of rare and new herbaceous plants.—T. APPLEBY.

HEATING THE WALTONIAN CASE.

I SEE by THE COTTAGE GARDENER that the present opinion is, that the Sherwoods give only half the necessary flame. I write this, therefore, to explain that a larger wick will not answer in a mortar, as the increased heat would melt the wax by which the wick is kept upright. So that if mortars be used the heat must be obtained by the use of two.—GEORGE WILSON, *Price's Patent Candle Company (Limited)*, Belmont, Vauxhall, London.

[This settles the question about night lights. The strongest of them will not keep a Waltonian going, night and day, during February and March, or during the night in very cold April weather; but two of them used at once would keep the Case up to the mark without a doubt, and one light would be sufficient in fine, clear, sunny days to keep up the day heat from first to last. That is the verdict of those who have tried the experiment, and who have the best practical knowledge on the working of the Case. They also say that "you gentlemen writers," from Mr. Hibberd onwards, put the stress of the heat 10° too high; that 70° are quite enough in the hardest weather; and that there is a great objection to a night power over that degree, as whatever the strength, it must work to its full power when people are gone to bed. As the Cases are now made to suit lamps, or lights, or a jet of gas, any one can choose which to use. I highly approve of these new Sherwoods, but they are dearer than the lamps.—D. BEATON.]

WHAT CAN BE DONE BY A GARDENER?

As referee in gardening matters, I should feel greatly obliged by an answer to the following: How many men would be sufficient to work the following houses? 1st, Double house, 44 ft. by 18 ft., hothouse and conservatory adjoining. 2nd, A small propagating-house, 9 ft. by 20, heated by the same boiler as No. 1. 3rd, A Geranium span-roofed house, 12 ft. by 28. 4th, Large

span-roofed house with Vines now full of Azaleas, some 4 to 5 ft.; in summer with Fuchsias, 20 ft. by 32. 5th, A small lean-to 9 ft. by 24, divided—one part Ferns and the other Orchids. 6th, Wooden house, where I grow my Camellias in summer, and filled now with Roses and anything else, 16 ft. by 11. 7th, A glass roof raised over potting-shed to protect and grow Grapes, now full of Vine-wood, 16 by 12. 8th, A house or pit, divided, two fires, 35 ft. by 9, full of bedding stuff and unsightly plants, useful rubbish, &c. 9th, A ten-light brick pit, and six two-light boxes.

And now I have got so far I may as well tell you my reason for asking, which I have been intending for a long time. Besides the above, I have an orchard garden of rather more than two acres, all under spade, and I have one man besides myself—a good farmer's man, but no man for a garden; handy enough, but a good deal too slow for a garden. The grass and walks I have not much to do with, as the grass is mown by machine, and two men come for the purpose. Now my employer is, I believe, the best master in the world; but he is now talking about showing, and I do not believe that, under existing circumstances, I can do it. If I could exhibit quality and quantity, attended to by one pair of hands, I am open to all England; but I do not think that I ought to be expected to grow specimens of hothouse, Orchid, and other plants for exhibition against others so much better situated. I attend my fires, and do all myself, winter and summer.—W.

[In our younger days we have several times had a bit of banter with the great Mr. Loudon on his recommending gardeners to wear gloves, at least when performing all their rougher operations. When rattling through a score of stoke-holes at a time, or when engaged in dissecting a rough Rose or Thorn bush, a strong pair of gloves is very desirable; but for the generality of work, even though the work be a little rough, so much depends on the dexterity of the fingers, that wrapping them in gloves is something similar to putting stockings upon a cat and yet expecting her to be a good mouser. We fancy in our mind's eye what sort of a figure our correspondent "W." would make decked out with gloves—cutting alternately from his orchard-ground to his sash-lines, thence to his stoke-holes, then to his water-can, and anon to his hotbeds in frames. We know already that his fingers, like somebody else's, are none of the straightest; and that those who grasp in honest friendship his somewhat horny fist, are not likely to be thence driven into reveries about the softness, and smoothness, and elegance of kid. The great author to whom we have referred, and who has had no successor as yet in the earnest, practical, kind sympathy he manifested and the good advice he gave to gardeners, used, as a sort of test of labour, to say that every acre in a garden should have its man. Of course this was merely an approach to what was actually wanted; as there might be cases where a man might manage several acres, and others where several, nay, a number of men, would be wanted for the acre. We could fancy the amazement at first of the good old worthy when informed that a gardener and a labourer could manage each his acre, and a little village of plant and hothouses, with more than a score of pit and box-lights into the bargain. We can only come to the conclusion that in the present case the orchard garden is little more than dug—that is, has little rotation of cropping in the year, so that the work can be done chiefly in winter, when there is less to do in the houses; and that in these houses, with the exception of the hothouse and Orchid-house, there is little demanding attention in winter and early spring except the necessary routine of air-giving, watering, &c.; that labour, even of every-day attention, will be very considerable if the hothouse, conservatory, Geranium-house, Camellia-house, Orchid-house are well filled, and anything like succession of bloom and succession of crops were attempted. In such a case we feel assured that it would require, not only to be a very early riser, but to turn his potting-shed into a work-room in the long winter and early spring months; or, like a worthy friend of ours, wear out his strength prematurely by turning his parlour-table into a training and tying-bench, and in the long evenings arranging and forming into shape his favourite plants: his good, patient wife, after remonstrating without avail as to the injury he was doing himself, quietly putting up with the litter of mat-ties and whit-tiling. These are times when a man who would rise must not shirk labour. A period is fast approaching, if not already here, when hard working combined with intelligence will even be better paid than great intelligence where the labour will chiefly be the working with the head. Our young gardeners, who from want of system would think themselves hardly used if they attended to

half of what our correspondent does, might here find something to suit them. Nevertheless, there is moderation in everything; and frequently the extreme of economy in labour, as respects the number of hands employed, is anything but real economy as respects the results obtained to the employer and payer of that labour.

Without a personal inspection we could not take upon us to decide explicitly in the present case; but we have no hesitation in saying that if that glass is to be made the most of, not only for the pleasure, but the profit of the employer—if in addition to plants and Vines, there are to be early Strawberries, Beans, and other culinary things, then we would say, that two men would be wanted pretty constantly, without having much to do with any orchard or other ground.

If exhibiting is resolved upon in addition, plants would require to be had for the purpose, or a season's preparation given beforehand; that is to say, if the plants already have not been trained into shape, and for this purpose the extra assistance of a young gardener with nimble fingers would be needed.

In such cases it is always best not to attempt more than can be done well. At the exhibition-table judges have nothing to do with the means of the exhibitor, though some exhibitors think differently. They must decide entirely on what is placed before them. The difficulty of deciding as to the amount of labour, consists in not knowing exactly to what extent the exhibiting is to be carried, and the evident want of labour out of doors, when there is a scarcity of work in the houses. We have no hesitation, however, in saying, that if a great many nice plants are to be grown, one young active gardener ought to be employed in addition to the present strength; and if the glass is to be made the most of, there would be another man required for a time in the spring months.

Just take Roses for an instance. Suppose that you wish to imitate Mr. Lane, or Mr. Fraser, or Mr. Paul, and take a dozen of large plants to an exhibition. You could not, without great expense, expect to get up such plants for a year or two, unless you have fine specimens already. But suppose that you have fairly entered upon the work, and that your specimens, pruned now, after being potted in the autumn, are now set in your house to be brought slowly on. From the time that they fairly break—and we will suppose you will have some two dozen large plants—in attending to them properly, keeping them clean, twisting and tying, so as to have them symmetrical, we do not think that a single man would have much more than the half of his working hours to devote to other matters. At the very least, one-third of the day on an average would be required for these plants alone, and a day would be necessary the day before the exhibition, a day at it, and the most of the succeeding day, to put all right again.

When fine skeletons of Geraniums are once obtained there would not be such labour wanted; and if the plants could be carried on a barrow to the exhibition-table very little sticking and tying would be required, if the plants were grown with abundance of air; but if taken for a long distance, if not well secured, the plants will present a sorry figure on the show-table, and do but little good afterwards.

We might enumerate other things in a similar way. There is one thing in which ultimately labour will be saved. When good specimens are obtained in largish pots, the labour of watering will be greatly decreased in comparison with a house filled with smaller plants; but then the waterings must be given with more judgment and practical skill. Setting an unskilled labourer among them with a pail would be apt to send some of the best of the plants ere long to their last resting-place.

Another thing which employer and servant must be quite decided on, if the former is desirous of having his houses ornamented with masses of bloom at all times, is, that a sacrifice must be made if specimen plants are to be the chief object. These specimens will, if well grown, be a pleasing object at all times, but when so coming forward they must not be choked up with other things in bloom. Looking at them when at their very best, anticipating the time when they shall appear in all their brilliancy must constitute the chief attraction. If much bloom is wanted at all times to please the eye, if many cut flowers are wanted for vases and glasses, then comparatively few specimens fit for exhibition can be grown in the same place. Were we in "W.'s" place, we would feel our way at first, and not attempt to show too much at first, unless with sufficient help. Unless he encroached on the night, and thus shortened his days, we would hold out no great hopes of success, if he got from his

glass all that could be obtained, and grew plants for exhibition likewise, without at least one additional assistant in the shape of a young gardener. If more help than that were given in the spring months, the employer's table might be all the better served. The demands, in such cases, are so varied, that it is impossible to establish anything like a rule as to the labour absolutely needed. In some such places, such a thing as a Strawberry would not be grown; in other such places, some 1500 or 2000 pots would be fruited before the natural Strawberry season. Such things make all the difference.

We give, however, these few ideas somewhat at random, and would be glad if some friends would try and be more explicit. We would particularly request that our coadjutor, Mr. Appleby, would give us the benefit of his experience.]

NEW OR RARE PLANTS.

NARTEX ASAFETIDA (*Asafetida*).

A native of western Thibet, north of Cashmere, where it was discovered by Dr. Falconer. The stinking gum-resin obtained from it and used in medicine alone entitles it to notice.—(*Bot. Mag.*, t. 5168.)

SPIRÆA NOBLEANA (*Mr. Noble's Spiræa*).

Sir W. Hooker seems to consider it a species, but Mr. Noble who sent it to Kew, inclines to think it a hybrid between *Spiræa callosa* and *S. Douglasii*. Flowers deep lilac colour.—(*Ibid.*, t. 5169.)

CHAMÆBATIA FOLIOLOSA (*Leafleted Chamæbatia*).

Flowers like a white Potentilla, with leaves like those of Milfoil. Native of the Sacramento Mountains in California. Imported by Messrs. Veitch and Sons, of the Exeter and Chelsea Nurseries.—(*Ibid.*, t. 5171.)

SCHOMBURGKIA LYONSI (*Mr. Lyons' Schomburgkia*).

An Orchid, native of the hills in St. Ann's Parish, Jamaica. Flowers white with purple spots. Introduced by Messrs. Rollison and Son, Tooting Nurseries.—(*Ibid.*, t. 5172.)

CENTROSTEMMA MULTIFLORUM (*Many-flowered Centrostemma*).

Native of Borneo, whence it was imported by Messrs. Low and Co., of the Clapton Nurseries. It has also been called *C. reflexum* and *C. Lindleyanum*, as well as *Hoya multiflora* and *H. coriacea*.—(*Ibid.*, t. 5173.)

MEETING OF THE ENTOMOLOGICAL SOCIETY.

THE February meeting of the Entomological Society was held on the 6th ult.; the chair being occupied by the new President, J. W. Douglas, Esq., who returned thanks to the Society for his election at the anniversary meeting, and trusted that he should receive the support of the members. He pleasantly referred to a story by the late Thomas Hood, in which a school-boy promises to send his companion from the country a Wasp's nest, and anything else which would be equally agreeable; and hoped that, although a body of Entomologists, no ill feeling or personality would be allowed to mar their proceedings. He appointed Messrs. Lubbock, Saunders, and Stainton to act as Vice-Presidents for the year ensuing.

A number of new publications were announced as donations to the Society's library, including Papers on the Silk Moths of India by Captain Hutton and Mr. F. Moore, the completion of Mr. Curtis's excellent treatise on farm insects, and the publications of the Stettin Society and Society of Arts.

A letter was read from Mr. W. Spence announcing to the Society the death of his father, the late W. Spence, F.R.S., &c.; and it was stated that a letter of condolence had been forwarded to the former by the Council.

Mr. Saunders exhibited two very curious new orthopterous insects from New Holland and Peru.

A variety of new species of British Coleoptera were exhibited by Messrs. Ianson and G. R. Waterhouse; among them was *Benbidium nigricornis*.

A paper was read containing observations by Mr. A. Wallace on the external marks of distinction between the sexes in the species of the genus *Lomaptera*, observed by him in the island of Gelob near Celebes.

Mr. Samuel Stevens exhibited a new species of Tortricidæ,

belonging to the genus *Coccyx*, reared from the cones of *Abies Benthamiana* from California.

Mr. Sealey exhibited specimens of *Sphinx Pinastri* and *Colias Edusa*, Hyale, and Helice taken near Romsey in Hampshire.

Mr. Gloyne read descriptions of several new species of Beetles belonging to the genera *Lema* and *Crioceris*.

Mr. Westwood communicated a notice of the death of Professor Dahlbom, of Lunden, Sweden, to whose talents he paid a warm tribute; and Mr. Tegetmeier also mentioned the recent decease of Dr. Bevan, the apirarian.

The President alluded to the complaints which had been made of the inconvenience of the present meeting-room; and stated that the subject was under consideration by the Council, who were desirous of receiving communications from the members on the subject.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 338).

PLUMS.

LATE ORLEANS (*Monsieur Tardive*; *Black Orleans*).—Fruit very similar in appearance to the Orleans, but larger. The flesh is more richly flavoured and sugary. Shoots smooth.

A valuable late dessert plum. Ripe in the end of September and beginning of October, and will hang till November.

Large Green Drying. See *Knight's Green Drying*.

Lawrence's Favorite. See *Lawrence Gage*.

LAWRENCE GAGE (*Lawrence's Favorite*).—Fruit large, round, and flattened at both ends. Skin dull yellowish-green, streaked with darker green on the side exposed to the sun, veined with brown, and covered all over with thin grey bloom. Stalk half an inch long, inserted in a narrow cavity. Flesh greenish, tender, melting, and juicy, rich, sugary, and with a fine vinous brisk flavour, separating from the stone. Shoots downy.

A delicious dessert plum. Ripe in the beginning of September.

Leipzig. See *Quetsche*.

Little Queen Claude. See *Yellow Gage*.

LOMBARD (*Bleeker's Scarlet*; *Beckman's Scarlet*).—Fruit medium size, roundish-oval, and marked with a shallow suture. Skin purplish-red, dotted with darker red, and covered with thin bloom. Stalk half an inch long, slender, set in a wide funnel-shaped cavity. Flesh yellow, juicy, and pleasantly flavoured, adhering to the stone. Shoots smooth.

A preserving or culinary plum. Ripe in the end of August and beginning of September.

London Plum. See *White Primordian*.

Long Damson. See *Prune Damson*.

LUÇOMBE'S NONESUCH.—Fruit above medium size, round, and compressed on the side, where it is marked with a broad suture. Skin greenish-yellow, streaked with orange, and covered with a greyish-white bloom. Stalk three quarters of an inch long, inserted in a rather wide cavity. Flesh greenish-yellow, firm, juicy, rich, and sugary, with a pleasant briskness, and adhering to the stone. Shoots smooth.

A dessert and preserving plum, bearing considerable resemblance to the Green Gage, but not so richly flavoured. Ripe in the end of August.

McLAUGHLIN.—Fruit large, roundish-oblate. Skin thin and tender, of a fine yellow colour, dotted and mottled with red, and covered with thin grey bloom. Stalk three quarters of an inch long, inserted in a small round cavity. Flesh yellow, firm, very juicy, sweet, with a rich luscious flavour, and adhering to the stone. Shoots smooth.

An excellent plum, ripening in the end of August.

Maître Claude. See *White Perdrigon*.

MAMELONNÉ (*Mamelon Sageret*).—Fruit medium sized, roundish-oval, tapering with a pear-shaped neck towards the stalk, and frequently furnished with a nipple at the apex. Skin yellowish-green, mottled with red next the sun, and covered with grey bloom. Stalk short, inserted without depression. Flesh yellowish, firm, very juicy, sugary, and richly flavoured, separating freely from the stone. Shoots smooth.

An excellent dessert plum, ripening about the middle of August.

Mimms. See *Diaprée Rouge*.

MIRABELLE PETITE (*Mirabelle*; *Mirabelle Blanche*; *Mirabelle Jaune*; *Mirabelle Perle*; *Mirabelle de Vienne*; *White Mirabelle*).—Fruit produced in clusters, small, roundish-oval, and marked with a faint suture on one side. Skin of a fine yellow colour, sometimes marked with crimson spots on the side exposed to the sun, and covered with thin white bloom. Stalk three quarters of an inch long, inserted without depression. Flesh deep yellow, firm, pretty juicy, sweet, and briskly flavoured, separating from the stone. Shoots downy.

A valuable little plum for preserving, and all culinary purposes. Ripe in the middle of August. The tree forms a handsome pyramid, and is a most abundant bearer.

Mirabelle Blanche. See *Mirabelle Petite*.

Mirabelle Double. See *Drap d'Or*.

Mirabelle Grosse. See *Drap d'Or*.

Mirabelle Jaune. See *Mirabelle Petite*.

Mirabelle d'Octobre. See *Mirabelle Tardive*.

Mirabelle Perle. See *Mirabelle Petite*.

MIRABELLE TARDIVE (*Bricette*; *Mirabelle d'Octobre*; *Petite Bricette*).—Fruit small, roundish-oval, sometimes quite round, and marked with a distinct suture. Skin thin and tender, yellowish-white, dotted and speckled with red, and covered with thin white bloom. Stalk half an inch long, slender, inserted in a shallow and narrow cavity. Flesh yellowish-white, firm, very juicy, with a brisk vinous flavour, and adhering partially to the stone. Shoots smooth.

An excellent preserving and culinary plum. Ripe in October. The tree forms a handsome pyramid, and is an excellent bearer.

Mirabelle de Vienne. See *Mirabelle Petite*.

Mirabelle Vert Double. See *Green Gage*.

Miser Plum. See *Cherry*.

Miviam. See *Royale Hâtive*.

(To be continued.)

VARIETIES.

BAST, or **BASS**, also called *inner bark*, *liber*, or *endophloëm* the fibrous inferior layer of the bark in the stems of exogenous plants, which is particularly conspicuous in exogenous trees, as a peculiar substance interposed between the true bark and the wood. It consists in great part of sap-vessels lying close together, and assuming the appearance of tough fibres. In a fresh state, it has generally a whitish colour; and it is often composed of several layers, to which, however, the collective name of bast-layer is very often applied. The uses of this part of plants in the arts are very numerous; the fibres of hemp, flax, jute, &c., are nothing else than bast. The name bast, however, is more commonly applied to the inner bark of trees, and is originally Russian, designating the inner bark of the Lime-tree or Linden-tree, which is employed for making a coarse kind of ropes, mats well known as bast mats, and a kind of shoes much worn by the Russian peasantry. The trees are cut when full of sap in spring. For bast to be plaited into shoes, young stems of about three years old are preferred; and it is said that two or three are required to make a single pair of shoes. Trees of six or eight years old are cut down for the better kind of mats, which are exported in large quantities from Russia, and particularly from the port of Archangel, and so much used for packing furniture, for covering tender plants in gardens, supplying strands with which plants are tied, &c. The trees from which the bast is taken are very generally burned for charcoal. After the bark is dried, its layers are

easily separated by steeping in water. The finest layers are the inner, and the coarser are the outer ones.—The manufacture of bast mats is nearly confined to Russia and Sweden. Not fewer than 3,500,000 are annually exported from Russia, and from 500,000 to 800,000 are annually imported into Britain. A few are made in Monmouthshire. Lime-tree bast is used in the south of Europe for making hats. The name bast-hat is, however, very often given to a hat made of Willow-wood planed off in thin ribbons, and plaited in the same manner as straw-hats. The inner bark of *Grewia didyma*, a tree of the same natural order with the Lime-tree, is used for making ropes in the Himalaya Mountains.—(*Chambers's Encyclopædia*.)

TO CORRESPONDENTS.

SOME BEDDING PLANTS (*A Subscriber*).—1st. *Gazania splendens* is a free-growing plant, and spreads itself over the surface without pegging. It continues in bloom till the frost. Plant bought plants nine inches apart every way, and from your own propagation only at six inches plant from plant, that is how to calculate the number for a bed. It is more easy to keep in winter than bedding *Calceolarias*, and strikes as easily as *Verbenas*, and in the same way. Ours from late last-autumn cuttings, are now showing flower-buds, but generally it is late in coming. 2nd. No bedding *Geranium* is more free to bloom than *Tom Thumb* and *Baron Hugel*, the latter is very dwarf and will possibly do well in your horrid soil. The leaf is a deep horseshoe, and the flowers have beautiful white bottoms or eyes. *Dandy* and *Lobelia speciosa*, half and half and well-managed, make the best pincushion-bed going. All the clay in your county, and all the muck in the parish, will not run *Dandy* too much to leaf, or cause it to produce a single blossom. It is grown for its variegated leaves and minimum habit. The Crystal Palace *Trentham Scarlet* is the best bloomer of the race of *Tom Thumb*; but the old *Trentham Scarlet* is not one-half so good, and we are not aware that the Sydenham kind is to be had in the nurseries; if it is, this will probably fish it out. 3rd. The *Purple Zelinda* *Dahlia* will make a good bed pegged down where you say, and a much better bed if not pegged down at all; but in that way it must not have a scarlet *Geranium* or a yellow *Calceolaria* round it. *Flower of the Day*, *Countess of Warwick*, or *Brilliant*, is the only admissible kind round *Zelinda*, when *Zelinda* is round *Brugmansia*, double white. The *Lobelia speciosa* from cuttings now or from seeds, will bloom to October, or ought; but in poor sandy soil, and very hot summers, like the last, it does not hold on quite so long; seedlings, however, hold on longer. 4th. *Bedding Geraniums*, plunged in pots, require the same kind of poorer soil they are potted in for winter, and No. 32-pots are the right size. We have answered all your queries, because they are interesting at this season to many of our readers.

BOOK ON VINE-CULTURE (*A Subscriber*).—Sanders "On the Vine," if for cultivation under glass; Hoare "On the Grape Vine," if for out-door cultivation.

EARLY-BLOOMING ANNUALS (*E. N. N.*).—The dwarf annuals—such as *Gillia tricolor*, *Collinsia bicolor*, and *Saponaria Calabrica*, if forced in very mild heat, and treated like young bedding *Calceolarias*, would be in bloom from the end of May, and last in bloom, according to the kinds, some six weeks, and some the whole season. You will find them all with their habits, sizes, colours, and time of blooming in former volumes. Dwarf annuals would not hurt a bed of any *Roses* much; all the hurt would be sucking the goodness out of the soil, but two or three good waterings with liquid manure would soon make up the difference; one of these waterings to be given just as the annuals were coming into blossom; a second when the bloom was over, and a third ten days later than that. Tobacco smoke will not hurt late or early *Vines* if it is no stronger than for smoking *Roses* and *Geraniums*.

GRAFTING POTATO TUBERS (*A Scotch Subscriber*).—You misunderstand what you recommend. Uniting parts of two tubers would have no effect upon the stems either part produced. Those stems have roots of their own for producing sap for sustaining their growth and the growth of the tubers they form. The only mode of imparting the qualities of one variety of Potato to another is by impregnating the pistil of one with the pollen from the second, and sowing the seed thus fertilised.

KILLING MOTHS AND BUTTERFLIES (*A. J. Ashman*).—Bruise thoroughly with a hammer some common Laurel leaves, put plenty of them into a wide-mouthed glass jar, over them put enough cotton wool to keep them firmly at the bottom of the jar, and have it tightly closed by a bung. There must be space enough between the cotton and the bung to insert the largest moth or butterfly, which is instantly killed by the prussic acid fumes when imprisoned in that space, and put into a dark place. Fresh leaves are required occasionally. Birds' eggs do not lose their colour unless exposed to a very strong light, and then not till after some years.

WINDOW GARDENING MANUAL (*H. Howard*).—Our "Window Gardening," as you remark, gives no illustrations as to tastiness in boxes, or vases, for window plants, for if it did, the expense would have been greatly increased and its circulation greatly lessened, amongst classes we were anxious should be conversant with its contents. The work contains directions for growing, and recommends arranging in such boxes and vases to hide the appearance of the pots, and in order that the plants may appear in a more natural condition. We are sure that had we given a dozen or a score of designs, hardly one would have been adopted. Every lady and gentleman would prefer going to their own tradesmen and telling them what they should like; and most likely if we had given a dozen designs for a hanging-basket, you would have been off and telling your wire-worker that you would rather have one in the same style as those of the Crystal Palace. In all such matters, in rooms, the great thing is to have the sides and bottom waterproof, so as to prevent making a mess on the floor, and means for draining off any superabundant water when desirable. These secured, we care not a bit whether your basket or vase consists of terra cotta, china, painted zinc, galvanised iron, or zinc or lead inside, with the outside resembling an elegant basket of wood or Willow, or anything according to the style of the room in which it is placed. Few people require to go many miles before they can see plenty of such specimens

of art in windows, and as public ornaments, and a book full of designs could only present you with similar hints that you could mould and fashion to your own circumstances. Even hanging-baskets in rooms, however open the outside may be, should have a close vessel inside, so that no water may drip. If in them and the vases there is a hole at the bottom, means must be taken to catch the water in a vessel concealed under the pedestal, &c.

MOTION OF THE SAP.—The plant *Elchies* (*COTTAGE GARDENER*, page 372) inquires after, is *Anacharis alsinastrum*, the notorious "Water Weed." It is as good as *Valisneria* under the microscope, and was introduced about 1842 (?). Certainly first seen in that year by Dr. G. Johnston.—SHIRLEY HIBBERD.

PEARS FOR THE NORTH (*A Subscriber*).—"In an inelement northern county," the situation, as well as the aspect, must be very favourable to enable you to ripen either the *Beurré Rance* or the *Chamoniel*. We recommend you to have in their place the *Marie Louise* and *Thompson's*.

MOWING MACHINES (*Herbert S. Hawkins*).—We believe Shanks' and Green's machines to be equally good; they are both highly recommended by first-rate gardeners who have used them, and in our opinion it matters little which you have.

CLIMBERS FOR A GREENHOUSE (*J. C.*).—We presume the little pits in the border are well drained, and divided one from the other. In the large space, five feet and a half, on one side of the doorway next the mansion, we would incline to grow and train *Habrothamnus elegans*, as it flowers almost continuously. If a rich dark foliage would be most attractive, then we would cover the space with *Acacia armata*. In the spring months wreaths of gold flowers would contrast beautifully with the dark green foliage. If you have young ladies in your establishment we would prefer a strong plant of the double white *Camellia*, for in such a place the buds would continue to open the most of the winter. Loam and heath soil will grow either well. The small space on the other side of the doorway we would devote to *Mandevilla suaveolens*, taking it up the end of the house and along a wire eighteen inches below the central ridge-board. 3. *Dolichos lignosus*, producing in great abundance small, purple, Pea-blossomed flowers; grown in fibry loam and a little peat. 4. *Jasminum revolutum*, yellow; or *Jasminum gracile*, white. 5. *Brachysema latifolia*; chiefly heath soil fibry, and a little fibry loam, and about a sixth part of silver sand and bits of charcoal. 6. *Kennedya Marryatta*, scarlet; chiefly peat and fibry loam. 7. *Sollya linearis*, blue; chiefly fibry loam with a little peat. 8. *Lapageria rosea*; or, if deemed too difficult, *Kennedya coccinea*, scarlet. We have not put in any Passion Flowers, as being too rampant for such a place. The following might be grown in pots the first year or so, to give a character to the rafters, before the established plants come up. Pink, white, and purple *Maurandya*, *Cobæa scandens*, *Lophospermum spectabile* and *Hendersonii*, *Passiflora alata cærulea* and *Colvillii*; and such *Tropæolums* as *pentaphyllum*, or even *peregrinum*. In planting the climbers that are to be permanent, it would be well to keep their stems from the pipes by means of a piece of wood three or four inches wide. We presume you have arranged for air. If you mean to have tallish plants in the centre they might stand on the floor. If you thought of having a stage in the centre you have made your side-stages rather too wide—sixteen inches. To make the most of the room in such a house would have been to take a walk down the middle—say 3 feet, and have a platform of 3½ feet on each side, which would take up the ten feet of width. To secure elegance and as much convenience as possible, the best mode would have been to have had a shelf 9 or 12 inches round the three sides, a walk of 2½ feet all round, and a platform of 3 feet or 3 feet 6 inches in the centre. As the side-stages are fixed we would take a walk of 26 inches all round; and that will leave you room for a three-feet stage, or rather sparred table in the centre. We need not remind you that many things may be kept under that, or rather these stages in winter; and that the sides next or close to the walk might be ornamented with edgings of *Lycopods* and the smallest *Ferns*.

GISHURST COMPOUND—NETTING FRUIT TREES (*Moore*).—For destroying the green fly you used Gishurst Compound too strong; instead of half a pound, use two ounces to the gallon, and repeat the application at intervals of two or three days. Garden-nets are as good as fishing-nets for sheltering blossoms, but they are no better; and you will have seen what Mr. Fish said last week about the various modes of protecting blossoms.

SIFTING FIBRY LOAM (*H. B.*).—For small plants you may safely and profitably riddle your soil. We presume that the vegetable matter is decayed. If not, it would be well to place the turf over a furnace, or in an oven to destroy grass, &c., and expose it to the air for a day or so before using. For very small pots you might use even a finer sieve—a half or three quarters of an inch, and the rougher riddings might be placed, a part of them over the drainage. With these precautions you will find the plants will find no fault, quite the reverse with the new soil.

WOODEN TANK (*L. R. Lucas*).—We know of none; and if we did, the carriage would be expensive.

VINERY BORDER (*N. B.*).—We do not think you could plant anything else in such a border with advantage, except the *Vines*. If you did plant anything, the plants would require to have a separate little pit or hole for themselves, separated from the *Vines* by a brick wall, or slate, or something of that kind. We do not know where your border is—whether front or back of your house. If the house is a lean-to, and the border at the back, two or three *Camellias* would be best to turn out. But either at back or front we should prefer pots placed on the border; or, better still, a shelf or stage of that width raised above it, on which you could set what plants you most fancied—such as *Primulas* and bulbs for winter; *Cinerarias* in spring; *Calceolarias* to follow the *Geraniums*, *Fuchsias*, *Chrysanthemums*, *Camellias*, &c.

STOVE IN A GREENHOUSE (*A Constant Subscriber*).—You will have seen frequent accounts by Mr. Fish and others, how well these stoves do for such a purpose, with ordinary care, provided they have a well-secured chimney out of the house. No matter what the fuel is, all that have no smoke-pipe are ruinous for plants at all tender. You will want a fair-sized one for such a house, 20 feet by 20 feet, and 10 feet high, and we presume span-roofed. We forget the sizes of the Joyce's stoves, but the one we once had was small. Any other stove, such as you see in shops and halls, would answer your purpose. It is always expensive to alter an article intended for one purpose to suit another. Stoves in general are made with the smoke-funnel. Joyce's is not so formed.

PYRAMIDAL FRUIT TREES (A Greenhorn).—We are not in a position to decide as to the expense of your trees. By your own account, your trees were trained so far as to have a central stem, and a good supply of healthy side-branches, from the base upwards. People have different ideas of what a pyramidal tree is, and we think, with the skeleton sent you, it would be possible to make your trees of any desired shape, either as a pointed, or a somewhat more obtuse upright shape. Considering the change, we think your plants have done well, and most likely either this season or the next, you will have bloom-buds on the wood the nurseryman sent you. If you shorten at all this season, an inch of the points will be enough. Next season you will have more growth and may shape accordingly. If we stopped the tree against the wall at all, it would merely be to shorten the points of the shoots by an inch or so. Next year you will have more wood. Keep the central shoot well down, so as to get wood to fill the tree. All seems as it should be. Buy Mr. Rivers' "Miniature Fruit Garden."

BOTANICAL TERMS (A Constant Reader).—Lindley's "Elements of Botany" will furnish you with the signification and illustrations of all the technical terms.

CYCLAMENS (H. P. Duprey).—Your plant is a common form of the new strain of *Cyclamen coum*—the only difference from the original *coum* being in the upper surface and form of the leaf. We have a patch of the same plant out in a cold frame but kept from frost, with leaves twice the size, and in one mass of bloom; but many thanks for your offer notwithstanding.

GRASS AND CLOVER SEEDS (A Young Farmer).—You will find the information as to quantities at page 582, article "Grass" of Johnson's "Farmers' Encyclopedia;" but we recommend you to buy P. Lawson and Son's excellent "Treatise on the Cultivated Grasses." It may be had from their office in Great George Street, Westminster.

INDIAN-RUBBER PLANT (A Window Gardener).—Your plant is the *Ficus elastica*. In general the temperature should seldom be lower than 45°; when growing it likes 10° or 15° more. We might have helped you better had we known the means at your command as a window gardener, and the length of the shoots you wish to propagate. If the shoots are not more than three or four inches long, you might manage them in your window in April. If you have such a thing as a hotbed, prepare for striking the shoots you can spare now. The first thing to do, is to let the plant get rather dry for a week, preferring to sponge the leaves, instead of giving much moisture at the roots. This will concentrate the juices, and prevent the shoots bleeding so much when cut. Then slip off the shoots, if not extra long, close to the older stem, daub a little pounded chalk and charcoal on the wound made, do the same on the end of your cutting, and where you may require to remove a leaf at its base, lay the end of the cutting exposed in a dryish place for twenty-four hours; but place damp paper or moss on the upper end of the cutting. Then rub off the most of the chalk, without causing fresh bleeding, and insert in a pot of sandy soil, and place under a glass in a hotbed, such as a Cucumber-frame. When struck, grow in loam, peat, and lime rubbish. We have seen them struck in a window in May, with a cone of thin, glazed paper put over them in the way of a glass. If the shoots are not above three inches long, and the pot is placed near the front of Cucumber-box, they would need no bell-glass over them.

GRUBS ATTACKING GREENHOUSE ROOTS (R. C.).—Your Begonia tubers and softwooded greenhouse plants are attacked by the larvæ of the very troublesome Weevil, *Otiorhynchus vastator*, which was figured in one of the early volumes of THE COTTAGE GARDENER. The plants should be carefully inspected, and the earth removed from the roots of such as show signs of the presence of the larvæ, which are easily seen from their white colour. The beetles themselves appear later in the year; and being of a dirty brown colour are more difficult to find, as they hide in the earth by day, and only come out to feed by night. They may, however, then be easily caught by coming into the greenhouse suddenly with a light, and shaking the plants over a sheet.—W.

NAMES OF PLANTS (A. B. C.).—The bits sent appear to be of the following:—1, *Coronilla glauca*; 2, *Genista Canariensis*; 3, *Cytisus racemosus*; 4, *Mitraria coccinea*; 5, *Hermannia alnifolia*. It is quite impossible for us to tell what causes the white spots on all the blossoms of your rose-coloured Camellias without seeing the petals, and knowing how the plants are treated.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

MAY. 23d and 24th. BEVERLEY AND EAST RIDING OF YORKSHIRE. Sec., Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

JULY 18th and 19th. MERTHYR TYDVIL. Sec., Mr. W. H. Harris, 142, High Street, Merthyr.

N.B.—Secretaries will oblige us by sending early copies of their lists.

KEEPING POULTRY PROFITABLY.

THERE are other ways of making profit of poultry besides selling at a Show. There are those who cannot attend Shows, and who trust to the catalogue for information and assistance. They see the list of pens belonging to the successful exhibitor, and apply for birds of the same strain; while others, more modest, ask the price of a sitting of eggs. Where care has been taken to weed a yard at the proper time, where exhibition is followed up with prize-taking as a constant result, and sales have been the consequence, it will be found that sales are perforce declined, that the breeding-stock may not be encroached upon, and this is a profitable proceeding. Wherever emolument, or even self-support, are to result from poultry keeping, stock must always be rather below than above the average. Mouths

should be counted, as they are in a city about to suffer siege, and all that cannot earn their food must go. Those three pullets that won in the chicken class 1859, must do the same as adults in 1860. Mrs. Thrifty shakes her head, and says, "It is a long time to keep them." Mr. T. smiles, and says, "All the eggs they will lay are sold at a good price, and will pay for their food over and over again."

We said we should fall into conversation, and we shall. Talleyrand said, when going up to take the oath of allegiance to Louis Philippe, "It is the twenty-first, I pray it may be the last." We fancy certain pens, Miss Rake's Spanish, Mr. Worrall's Hamburgs, Captain Hornby's and Mr. Wakefield's Dorkings, Mr. Archer's Silvers, Mr. Tomlinson's Cochins, Mr. Moss's Game, Mr. Fowler's Ducks and Geese, Mrs. Pettat's Polands, and others must shudder at the sight of the basket in which they have travelled so often—must know certain Judges by sight; and, while they sigh over the confinement, smile on recognising familiar faces. That which had become wearisome and a farce to Talleyrand, is an imposing ceremony to our rifleman of 1860; and the pens we have mentioned must be hardened to success. In the hands of any one disposed to make money of them, such pens as these may realise the fable of the golden eggs. There is something gratifying to an owner to see prize pullets growing into prize hens, and earning money all the time. The profit of one of them may be small, but multiplied by a hundred it becomes important. The second result of successful exhibition will be the sale of *all* the surplus stock at more than remunerating prices, and the sale of all the eggs at 1s. each for sitting, instead of 6s. per hundred for puddings. Admit that we have over-stated the numbers, and we will still prove a profit. A hen will cost 2d. per week to keep in high condition—8s. 8d. per year, and at least you will sell fifteen eggs at 1s. Profit, 6s. 4d. As for those who make 3s. each, why it beats the "Diggings." We say nothing about prizes or stock birds, or surplus eggs eaten or sold; but we put the profit of thirty good hens or pullets of a known successful strain at £9 per year, being the second way of keeping poultry profitably.

COLOUR OF SPANISH FOWLS' EGGS.

HAVING paid 30s. for a handsome Spanish hen, and finding she lays a tinted-coloured egg (of which I enclose a sample), I shall feel obliged by your opinion, whether this is possible to occur, if she be of a decidedly pure breed.—A SUBSCRIBER.

[We keep very many Spanish fowls, and although they are rare, we have sometimes eggs of the colour of the shell you have enclosed. It would certainly not enhance the value of the bird in our eyes, yet we should be loth to discard or to judge her harshly on account of it. It is very common for Dorkings to lay such, and all who have watched Cochins must be aware of the remarkable difference in shade and colour there is in eggs laid by the same hen. Having said this, we would add, we should not hatch these eggs if we had any others.]

MANGOLD WURTZEL FOR FOWLS—VICIOUS GANDER.

SEEING some fowls pecking at a Mangold Wurtzel in a farmer's yard, I have bought some for my fowls. It seems to me an excellent green meat for them at this dead season. I throw one down in the yard, and they seem to enjoy the fun of pulling out bit by bit. It costs 6d. the bushel of fifty-four pounds. I give it them raw.

I have a vicious gander which has a fancy for killing other birds. He set on a white duck the other day, and did his best to kill her. Now he has taken a spite against a fine Dorking cock, and seems to intend to kill him. Can I do anything to cure him? He is a fine powerful fellow.—C. R.

[Does the gander show his bullying propensities at any other time than the incubating season?—Eds. C. G.]

EVERLASTING LAYERS.

I ENTIRELY endorse your opinion as to the breed of the fowls to which "J. C. H." refers. I had three Silver Ham-burgh hens which began to assume the iron-grey appearance you name at the age of three years, and each year became

more mixed in their plumage. They are large hens of their sort, and lay very fine eggs, though not nearly so large as my Black Spanish. For about three years their laying propensities were marvellous. Last autumn I gave two of them away, the third I kept, and she laid pretty well into the winter, and from her present appearance I expect her to commence again shortly, though she is now very little, if any, less than seven years old.

As there have been so many inquiries by your correspondents as to the most profitable layers, I will, while upon the subject, say that I have now two very wonderful layers, cross-breeds, both by my Black Spanish cock, one from a Black Poland, and the other from a Cochín-China hen. The former the best, and she never sits—nothing but moulting seems to put her off her laying. She lays on an average, five eggs per week, and has, upon several occasions, laid six. She is a small bird, and her eggs are only moderate in size. The other hen, also, lays her five and six eggs a-week, but she has constant fits of sitting, and is an excellent hatcher. I sat her on three successive lots of eggs last year, taking her broods away as fast as they made their appearance, and placed them with another parent, and though, at first sight, it appears somewhat cruel, I believe I secured her happiness by so doing, and she very shortly commenced laying again, and I find very little difficulty in preventing her sitting when I do not require her. Her eggs are fine in every respect.

I do not know whether this hen, Poland cross, is a fair sample of that breed, as she is the only bird I ever saw; but if she is, they are valuable, as she is a very neat little bird, and always well; though most of my birds have had the distemper twice, she has always escaped, and she possesses, too, a wonderful degree of instinct, for she laid two eggs on Shrove Tuesday, though, by-the-by, this is not the first time she has laid two in the course of a day.—T. C.

I BELIEVE I have the very same sort of fowls as your Worcester correspondent, "J. C. H.," on "Everlasting Layers," describes the one he had some years since. I have two pullets and one cockerel, they are very short in the leg, comb single, and erect; plumage a kind of smoky ground with faint light spots. These three birds were hatched last May; they began to lay about a week before Christmas, and have continued laying ever since, except about four or five days, when they began laying again. I would not lose the stock on any account; they weigh very heavy, and would make good fat chickens for market, provided there are more of a common sort kept for sitting. I have now three common hens sitting on thirty-nine eggs from the same two pullets, and if I have good luck, I shall feel happy to supply your correspondent with a pen of two hens and one cockerel by-and-by.—ROBERT DAY, *Montpelier, Waldron.*

HOW TO OBTAIN A GOOD SUPPLY OF EGGS FOR WINTER USE.

FIRST, by preserving them in the summer for culinary purposes; and secondly, to get new-laid eggs for breakfast.

First. The best situation to preserve eggs is a dark dry cellar, round which put tiers of shelves made from 1 or 1½-inch boards; through each shelf bore rows of holes with a taper-auger just large enough to take the small end of the egg. The eggs must be taken as fast as they are laid, and put into the holes in the shelves upright with the crown-end uppermost, and there to remain until required for use. They will keep good for several months in this state if put up when first laid—that is, in a rough state—not shiny or glossy.

I can assure your readers this is an excellent method of preserving eggs. We are now using eggs for culinary purposes which were put up in the hot weather last July, and they are sound and good. The only effect time seems to have on the eggs so preserved is, the interior of the egg condenses; so that the air-space, or crown, at first is the size of a threepenny-piece, becomes the size of a shilling in seven months, while both yolk and white of the egg continue as sound and as perfect as an egg just laid.

Secondly. To get new-laid eggs for breakfast in the winter, you must first get the best sort of fowls to lay early. The sort I prefer is the first cross between clear-legged Bantam hens of tolerable size and a Game cock of moderate size. If you can keep pullets from early hatches of this cross, they will generally begin laying in the autumn; and should the weather prove tolerably mild, they will continue to lay the greater part of the winter. For a rooster I prefer a young Game cock of full size, and change him every season.—RICHARD SMITH, *Witney.*

RABBIT KEEPING.

I HAVE lately commenced keeping a doe. Perhaps "G. W." may like to hear the result of my short experience. She has kindled twice, giving me nine young the first time, eleven the second. I killed my first rabbit when nine weeks old. It was very fat, and weighed one pound and three-quarters when ready to dress. The second the next week was a trifle heavier. I give the young ones daily two handfuls of pollard mixed with boiled potatoes; or one pound rice, one handful each of bran, four or five Swedes, a bundle of oat straw, and all my tea-leaves. Of green food I have none to give them now; but they seem very happy without it in their six-feet-square house, though doubtless they would be benefited by some; but I think I have proved satisfactorily that they will thrive well on the cheapest food you can procure for them. The doe is somewhat more dainty, and must have hay instead of barley-straw, and much prefers pollard to bran. As she has such large families to nourish, I humour her tastes, and give her as much as ever she can eat, except of green food, it being now so very scarce. She has a house to herself about the same size as that for the young ones, and I much doubt if she would have done so well in the confinement of a hutch. The second batch were born nine weeks exactly after the first—two weeks later than necessary. It is a great pity there exists a prejudice against eating tame Rabbits, as many persons in consequence deprive themselves of a very delicate meal, procurable at very small expense; and there really is no reason whatever for the prejudice, if only the Rabbits be allowed plenty of room and air, and strict attention be paid to cleanliness.—G. MONTAGUE.

[We shall be glad to hear from you about the best mode of feeding and managing Rabbits. The "Poultry Chronicle" was originally a separate periodical, but could not live alone. It failed to be remunerative.—Eds. C. G.]

THE LATE DR. BEVAN.

I WAS pleased to observe the honourable mention made of that scientific apiarian, Dr. Bevan, in one of your late numbers, and cordially agree with you, that it would be desirable to get another edition of his excellent work sent forth to the public (in a cheaper form, if possible). If his executors were to publish an edition at about one-third of the original cost, I have no doubt it would sell well. The "Honey Bee" is one of the most classical works on the subject which have appeared during the present century, and is written in an elegant and thoroughly unostentatious style. Dr. Bevan gives full credit to the "great Huber," for his discoveries, and mentions the other writers who have also contributed to the knowledge of the habits of these wonderful insects—the bees. In the preface to the "Honey Bee," Dr. Bevan enumerates the writers from the earliest ages, and also those writers of any celebrity up to the year of the publication of his work (1827).

Although Dr. Bevan recommends large bee-houses to his readers (by many apiarians considered old-fashioned), still he enumerates all the modern improvements up to the year 1827, by recommending bee-boxes, the storifying-system, unicomb-hives, and other humane treatment of his favourite insects.

In my opinion, no real lover of bees ought to be without Dr. Bevan's work, which contains by far the best and most unprejudiced opinions on all the great discoveries made in the history of bees during the last hundred years.

It is also gratifying to learn that the Doctor was a man of sterling private worth, and his green old age of 89, showed that he had not, as Byron says, "spent the summer of his youth while it was May."—H. W. NEWMAN, *Hillside, Cheltenham.*

BEEES AND THOSE WHO HAVE WRITTEN ABOUT THEM.

THE bee has been a subject of observation and praise for its industry and skill, as well as for its stores of honey and wax, even in the earliest literature which remains; even its names in

Hebrew and Chaldee, *Deburah* and *Debra*, are derived from a root which in those languages refers to the admirable order and conduct by which the bee is led in its various works.

The earliest notice of them in the Bible refers to their irritability and their swarming. "The Amorites came out against you and chased you as bees do." "The bee that is in Assyria, shall come and shall rest in the desolate valleys, and in the holes of the rocks, and upon all thorns, and upon all bushes."—(*Deuteronomy* i., 44; *Isaiah* vii., 19). Homer has a similar comparison when describing the Grecian forces issuing from their ships.—(*Iliad* ii., l. 87).

"As from some rocky cleft the shepherd sees
Clustering in heaps on heaps the driving bees,
Rolling and black'ning, swarms succeeding swarms,
With deeper murmurs and more hoarse alarms;
Dusky they spread, a close embodied crowd,
And o'er the vale descends the living cloud."

But we do not purpose dwelling upon the notices of the habits of bees, our object being to place before our readers, in chronological order, the directions given by practical bee-keepers for the management of the apiary. We think that many of our readers will be surprised to find that some of our most skilful practices are the same as those of 1800 years since.

The first work we shall quote is the "Husbandry" of Lucius Junius Moderatus *Columella*, written about A.D. 50.* In the ninth book, after describing various kinds of bees, the plants to be cultivated for them, the construction of an apiary facing the south, with a good supply of water, and a store of spare hives; he gives a chapter upon the construction of these, and here let us quote somewhat of what he says:—"We may make very useful hives of the bark of the cork tree, for they are neither extremely cold in winter, nor excessively hot in summer. Of fennel-giant (*Ferula communis*) hives are woven equally good, as they are of the same qualities as the bark. Some persons employ willow twigs, weaving them like weavers' work. If these cannot be had, the hives must be made of the trunk of a tree hollowed out, or sawn into boards. Hives made of pottery are the worst, for the summer heats scorch them, and they are frozen by the winter colds."

Yet let no one suppose that glass hives, or observatory hives, or hives capable of enlargement, are modern inventions, for Pliny tells us, "Many persons have the hives made of mirror stone (*Lapis specularia*, a transparent talc), for the purpose of watching the bees at work within." For the same purpose, he also relates, "a man of consular dignity, near Rome, had his hives made of transparent lanthorn horn. By this means it was ascertained that the young bee was developed from the egg in forty-five days."—(*Nat. Hist.*, xxi., 47, and xi., 16.) The cover of the hive should be made to move up and down from behind, so that it may be lowered inwardly if the hive be too large" (*Pliny*), and "that the bee-master may take the combs."—(*Varro, de re rustica*, iii., 16.)

We will not pause over the directions for placing the hives, nor over the signs of approaching swarming, nor over the description of "the king" of the bees, for the Romans mistook the monarch's sex, though all is consonant with our own knowledge; but we must quote some passages from the chapter on uniting swarms.

"Sometimes the king must be put to death, when the old beehive has not a sufficient number of bees; and its want of numbers must be supplied by some other swarm. Therefore, when, in the beginning of the spring, a numerous young brood has been hatched in that hive, the new king must be squeezed to death, that the multitude may continue to live with their parents without discord. But if the honeycombs shall have produced no progeny at all, you may bring the commonalty of two or three hives together into one; but they must be first sprinkled with sweet liquor: then afterwards you may shut them up, and, having placed meat for them, you may keep them shut up almost for the space of three days, leaving small breathing-places for them, till they accustom themselves to converse familiarly, and live together.

"But the paucity of the bees may be remedied with less trouble in those domiciles which labour under any pestilential distemper: for after the havoc and destruction of the hive,

* Virgil wrote his *Georgic* concerning bees before this date; but *Columella* is more practical. There were still earlier writers upon agricultural matters mentioned by him, such as Hyginus and Celsus. Pliny also mentions Aristomachus, of Soli, who for fifty-eight years devoted himself to the pursuit; and Philicus, of Thasos, who passed his life in deserts tending his bees. All their writings are lost.

reduced to a small number, is known, you must examine and view what honeycombs it has: then, afterwards, from the wax which contains the seeds of the young bees, you must cut away that part wherein the offspring of the royal kind is animated: for this is easy to be seen; because at the very end of the waxworks, there appears, as it were, the nipple of a pap rising higher, and of a wider cavity than the rest of the holes are of wherein the young bees of vulgar note are contained. Celsus indeed affirms, that, in the utmost honeycombs, there are transverse pipes or cavities, which contain the young royal progeny. Hyginus also, following the authority of the Greeks, denies that the captain-general is formed of a little worm or maggot (as the rest of the bees are); but that in the circumference of the honeycombs there are found straight holes, somewhat larger than those of the plebeian seed, filled, as it were, with a sordid substance of a red colour, out of which the winged king is at first immediately formed."

The treatment of the diseases of bees, and a calendar of operations are next detailed. Swarming began "from the rising of the Pleiades to the solstice, which falls in the latter part of June," and directions are given for preparing the hives by rubbing their interiors with fragrant herbs; for feeding the bees in winter, "in little troughs within the entry of the hives, either with dried figs, bruised and moistened with water; with the rob or boiled juice of grapes; or with sweet wine; wool must be soaked in the liquids, that the bees standing upon it may draw up the liquids from it."

We all know that in Devonshire, the lowlands of Scotland, and elsewhere, it is customary, at the close of summer, to convey hives to the vicinity of heathy districts where the bees may enrich their stores from the ericæ and other flowers of such localities. This is no new practice, for Pliny relates, "There is a village called Hostilia, on the banks of the Po, of which the inhabitants, when the food fails the bees in the vicinity, place the hives in boats, and convey them about five miles up the river during the night. In the morning the bees go forth to feed, and return to the boats; their locality being occasionally changed, until, at last, the boats sinking deeper by degrees in the water, it is ascertained that the hives are full, and they are then taken back to Hostilia, and the honey extracted."—(*Natural Hist.*, xxi., 43.)

That the bee was cultivated extensively and profitably by the Romans, we have the testimony of Varro, who says that "he had two trustworthy soldiers under him, who were brothers, and from the country of the Falisci (between Rome and Tuscany), who had a small villa left them by their father, with land not larger in extent than an acre; round this they formed an apiary. In the garden they grew thyme, cytissus, and balm. For the honey of that apiary they usually received no less than 10,000 sesterces" (equal to about £80 of our money).—(*Varro de re rustica*, iii., 16.)

We might multiply our extracts from *Columella*, *Pliny*, *Varro*, and *Palladius*, until we formed a volume of sound practical directions for the apiarian; but we will pass on to more modern authors, remarking only in conclusion, that *Palladius* is the earliest author of a calendar in which he directs in every month what is to be done in the Farm, Garden, and Apiary.—G.

(To be continued.)

BEES PILLAGING THEIR NEIGHBOURS.

I HAVE five hives, three wooden and two of the common straw hives. To keep all sheltered, I had a stand with a cover made, containing two shelves; the entire stand 3 yards in length, and about 7 feet high, 3 feet deep. Last summer several bees were scattered about, dead—working bees; and now again they have been fighting and killing each other, though I do not think them closer than when unprotected under a wall. What would be the best remedy, and what the best aspect for the stand? I never noticed any fighting when the bees were along the wall; in which situation it was, however, very inconvenient to keep the hives, as people were obliged to pass constantly, and were liable to be stung. If safe, and not calculated to produce fighting, the stand would be the most convenient place.—AN OLD SUBSCRIBER.

[It is not a very unusual thing in the spring for bees to attack an adjacent hive, sometimes impelled by hunger, and at others from a disposition—too often common to men as well as bees—

to tyrannise over a weak neighbour. A needy stock ought, therefore, to be encouraged by feeding within the hive, contracting the entrance to enable them the better to repel invasion; though sometimes it might be well to remove such stock to a distance, and confine them for a short time. There is always an evil in crowding hives too near together; and a bee-house three yards in length for five stocks is rather insufficient in point of space apart. In the case of young queens, after going abroad, they have sometimes met death by entering a wrong hive. Fighting has been known at this time to occur in the event of the death of a queen bee, when the family, having no means of supplying the loss, endeavour to unite themselves to some other stock. We should prefer a bee-house rather than a wall to range the hives against, as this is seldom desirable or convenient. As to aspect, there is no rule absolutely, much depending on circumstances—as trees, buildings, &c., obstructing the flight of the bees. We have known bees to thrive under almost any aspect; but a preference is commonly given to south-east. West, we think, is the most objectionable, on account of the afternoon sun.]

LIGURIAN QUEENS:

DIRECTIONS FOR UNITING TO STOCKS OR SWARMS.

As soon as the small box containing a Ligurian queen and her attendants has been received, steps should be taken for removing the common queen from the stock, or swarm, to which the strangers are to be united.

Where bar-hives are in use the operation is sufficiently easy but should not be attempted without the protection afforded by a bee-dress and thick pair of woollen gloves. The services of an assistant similarly accoutred will be found very useful, but are not absolutely indispensable.

The middle of a fine day is the best time for the operation, which should be commenced by removing the stock a little either to the right or left of its usual position, which must be occupied by an empty hive, from which the top-board and comb-bars have been removed. The top-board of the full hive must then be shifted on one side sufficiently to expose a single bar, which may be carefully withdrawn after the attachments of the comb have been severed from the back and front of the hive by a bent knife. Both sides of the comb must be rigidly scrutinised, and any clusters of bees gently dispersed with a feather, until it becomes evident that the queen is not present, when it may be placed in the empty hive. The same process must be repeated with each successive comb until the queen is discovered and secured, when the bees may be either allowed to remain in the hive to which they have been transferred, or replaced in their original domicile. Sometimes the queen is not to be found on any of the combs, but may be detected among the stragglers remaining in the hive. In practised hands her discovery may be reckoned on with tolerable certainty during the first removal; but if she succeed in escaping detection, the process must be repeated until she is secured.

Driving is the best method to adopt with common hives or boxes; and the bees, having been expelled from their habitation, may be knocked out on a cloth and searched over until the queen is discovered.

Should the bee-keeper be unable to perform the operation of driving, fumigation may be resorted to, and the queen secured whilst the bees are in a state of insensibility.

It is unnecessary to describe the mode in which either driving or fumigation may be accomplished, as full directions for performing both these operations are to be found in nearly every bee-book.

Presuming the queen to have been removed, and the bees restored to their original hive and position in the apiary, measures must now be taken to introduce the Italian sovereign to her future subjects. The first step will be, carefully to remove the lid of the small box, replacing it with a slip of perforated zinc without permitting the bees to escape. The whole must then be inverted over an opening in the top of the hive containing the queenless stock, where it should remain undisturbed till the next day, when the perforated-zinc divider may be withdrawn, and the union will be complete. The small box itself need not be removed till the third day, when the bees will be found to have quitted it.

After the lapse of about thirty days, young Ligurians may, probably, be discovered taking their first flight, and affording

unmistakeable evidence of the consummation of a dynastic revolution.

For the encouragement of those who are disposed to doubt of success in substituting Ligurian for English queen-bees, it may be stated that all these methods have been tried and all have proved so fortunate in their results, that not a single failure either by himself or others, has come to the knowledge of—A DEVONSHIRE BEE-KEEPER.

OUR LETTER BOX.

BOX FOR CARRIAGE OF EGGS (W. R. E.).—We cannot tell you what the size of the box should be unless we knew what eggs you intended to send. Spanish eggs take more room than Hamburgs. We are not friendly either to sawdust or bran for egg-packing. Common moss is the best thing, as it is not at all affected by the constant shaking of a railway or other conveyance; and by its elastic properties it keeps its position, and thereby causes the eggs to keep theirs.

SITTING HEN FASTING (Idem).—While a hen is sitting on eggs she does not seem affected by the ordinary wants of other times. Hunger and thirst do not trouble her. It is probable, unless she is shut in, that your hen gets something. You must watch that she does not suffer from over-fasting, and let her have food and water within reach: a small quantity will be enough.

BLACK SPOT IN EGGS (Greenhorn).—Without seeing the spots which occur in the whites of the eggs we can form no opinion on either their cause or nature.

HEN EATING HER OWN EGGS (A Fancier).—There is no mode known of preventing this, except watching her and taking the egg as soon as laid. Can any of our readers give us any practical information or suggestion?

GOLDEN-STRANGLED POLANDS' EGGS (W. Clark).—Write to some of the prizetakers of this breed, and ask them their charge for a sitting.

BRAHMA POOTRAS AND PARTRIDGE COCHIN-CHINAS (A Constant Reader).—They are equally hardy, and there is no doubt that they are varieties of the same breed.

GUINEA FOWLS (J. C.).—We know of no work except "The Poultry Book" that treats of Guinea fowls. The answer to which you allude was a mistake arising from a letter received from a correspondent. Our Guinea fowls are wanderers. They steal their nests in all sorts of out-of-the-way places, and we can only catch them by watching where they roost. Nevertheless, if they are not driven they will remain in the yard contented with the poultry. They sometimes go into the roosting-place. On the first alarm they seek the top of the highest barn. It is only by dint of watching we can find their nests.

HEN PHEASANTS (Reldas).—You will have no difficulty in getting some tame hen Pheasants. Apply to Mr. Baily, Mount Street, Grosvenor Square, London. You should put two or three hens with each cock, and they must have separate pens. The two cocks must not run together.

BARNS OF HIVES FOR LIGURIAN BEES (A Bee-keeping Subscriber).—The bars in hives intended for this species should be of the usual width. We have not seen any combs fabricated by Ligurian bees. As these foreigners are said to be larger than the ordinary species, it is possible the cells of their combs may vary in proportion; but the difference (if any) is probably so little as to be inappreciable. Directions for multiplying Ligurian queens may be found in page 76 of our present volume.

IMPORTED LIGURIAN BEES—THEIR PRODUCE (A South Hants Subscriber).—Italian bees arriving from the Continent should be set at liberty as soon as possible. Mr. Payne says, "It is usual to obtain from every good stock twenty, or perhaps thirty, pounds of honey annually." We should, however, deem it a first-rate district in which so high an average could be maintained.

TAKING A QUEEN (Ignoramus).—"A DEVONSHIRE BEE-KEEPER" deprecates fumigation in removing a queen from a bar-hive. He says, "It is quite unnecessary, and I believe positively injurious." He also gives instructions for performing this operation, which will be found in another column.

LONDON MARKETS.—MARCH 19.

POULTRY.

There is a small advance to note in the price of good poultry, caused more by its natural scarcity at this time of year than by any increase of trade.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	5	6 to 6	0	Turkeys.....	0 0 to 0 0
Smaller Fowls.....	4	0 " 4	6	Guinea Fowls.....	2 6 " 3 0
Chickens.....	3	6 " 4	0	Partridges.....	0 0 " 0 0
Geese.....	0	0 " 0	0	Pigeons.....	0 8 " 0 9
Goslings.....	7	0 " 7	6	Hares.....	0 0 " 0 0
Ducks.....	0	0 " 0	0	Rabbits.....	1 4 " 1 5
Ducklings.....	4	0 " 4	6	Wild ditto.....	0 9 " 0 10

WEEKLY CALENDAR.

Day of M th Week.	Day of Week.	MARCH 27 — APRIL 2, 1860.	WEATHER NEAR LONDON IN 1859.				Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
			Barometer.	Thermom.	Wind.	Rain in Inches.						
27	Tu	Veronica verna.	29.923—29.270	55—45	S.W.	.00	48 af 5	23 af 6	morn.	5	5 21	87
28	W	Veronica triphyllus.	29.698—29.340	55—45	S.W.	.03	46 5	25 6	38 0	6	5 3	88
29	Th	Salix monandra.	29.179—29.120	53—42	W.	.03	44 5	26 6	39 1	7	4 45	89
30	F	Salix triandra.	29.588—29.229	37—25	W.	.71	41 5	28 6	29 2	3	4 26	90
31	S	Salix pentandra.	30.159—29.983	41—19	N.	—	39 5	29 6	6 3	9	4 8	91
1	SUN	PALM SUNDAY.	30.260—30.033	46—38	.....	—	36 5	31 6	34 3	10	3 50	92
2	M	Salix amygdalinia.	30.018—29.876	52—42	S.W.	.01	34 5	33 6	56 3	11	3 32	93

METEOROLOGY OF THE WEEK.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 54.2° and 34.2° respectively. The greatest heat, 75°, occurred on the 2nd, in 1848; and the lowest cold, 15°, on the 30th, in 1856. During the period 140 days were fine, and on 91 rain fell.

IN-DOOR GARDENING OPERATIONS FOR THE WEEK.

GREENHOUSE AND CONSERVATORY.

As fine spring weather has come at last, every plant which inhabits a pot should be brought at once under review, and put in proper condition for the growing season. No fear need now be apprehended from potting. Keep up a moist atmosphere by sprinkling, &c., and admit plenty of air, bearing in mind former directions as to draughts, &c. If the plants in the borders, or any of the climbers, are dry, give them a good soaking of weak, tepid manure water. Trellis climbers to be frequently attended to—stopping, training, and arranging their shoots.

FUCHSIAS.—Continue to shift young plants into larger-sized pots, according to their height and strength; to be kept growing by placing them in a brisk, moist heat. Cuttings to be potted off as soon as they are sufficiently rooted; to be placed in a temperature similar to that in which they were struck.

STOVE AND ORCHID-HOUSE.

Some of the young plants in the stove which are growing on for specimens will probably require a second shift, see to them in time; and if they are in good health treat them liberally by giving a large shift, especially to plants of free growth. Give plenty of air at all favourable opportunities, and saturate the atmosphere with moisture. The surface of the tan to be stirred once or twice a-week, and sprinkle it occasionally with manure water, to produce a moist, congenial atmosphere about the plants. Shut up with plenty of sun heat. Look sharply after mealy-bug and thrips.

ACHIMENES.—The plants established in small pots may be removed into the flowering-pans, putting six plants into a pan.

ORCHIDS.—Increase the temperature, and ply the syringe among them, as they will now grow rapidly. Be careful not to throw too much water over those sending out succulent flower-stalks, for they may damp off. Ferret out and destroy cockroaches, woodlice, and snails.

FORCING-HOUSES.

CHERRIES.—When you are sure that the fruit is finally stoned, the temperature may be raised a few degrees; air and water overhead to be liberally supplied.

CUCUMBERS.—Stop frequently, and thin liberally; where two fruit show at a joint pinch one away.

FIGS.—If red spider should be observed, wash the flues or the walls exposed to the sun with lime and sulphur.

MELONS.—Keep up a brisk heat in the beds by renewing the linings; the coverings at night to be regulated in accordance with the heat of the beds, taking care that the mats do not hang over either the front or back of the frames.

PEACHES.—Remove all superfluous shoots, and tie in neatly those that are left; thin the fruit that is swelling off before stoning, leaving more than may be ultimately required, as, in stoning, it is liable to drop off. Syringe

the trees daily in fine weather. Where it is intended to force Peaches, Cherries, &c., in pots next season, and some suitable trees have to be provided, it should be no longer postponed. It is a good plan to pot some maiden plants every year, to succeed any that may become useless.

PINES.—Follow former directions as regards airing, watering, syringing, shutting up, &c. The fruiting-house may range from 80° to 85° during the day, and as near 70° as possible at night; the succession-pits from 75° to 80° during day, and 60° to 65° at night. These particulars to be modified by the state of the weather, whether sunny or dull.

STRAWBERRIES.—The plants swelling their fruit require a liberal supply of water, and a sprinkling overhead daily. When the fruit begins to change colour the sprinkling to be dispensed with, and the supply of water at the roots to be given sparingly.

VINES.—Attention to be given in stopping all laterals, and breaking off all useless shoots for the more free admission of light, which is most beneficial in every stage of their growth. Look over houses where the fruit is swelling, and see if any of the bunches would be improved by tying up the shoulders. Any healthy Vines, but not of good kinds, should be inarched before the wood gets too old.

WILLIAM KEANE.

VAUXHALL NURSERY—MESSRS. MILNE & CO.

THE march of improvement keeps pace with the march of intellect, as well in the senate as in the camp, the school and the nursery; but the march of circumstances overrules the young ideas and the precepts of ancient wisdom alike, and we must bow to the force of circumstances. For example: This time last year we introduced the Vauxhall Nursery—the British emporium of Chinese Camellias to the notice of our readers, under the improving influences of a new firm with fresh blood and vigour, and with the determination to prosecute the rules and laws of that empire according to the pace of the most recent experience. Since then Mr. Arnott, to whom I might safely say I was godfather in gardening, left the firm, and went down to Edinburgh to learn all about the Experimental Garden in which I first figured before the Caledonian dons of modern Athens; and all that I can say is, Good luck to him till he comes “bauck” again.

Milne & Co. are up to the neck in beauty and fashion this spring. Their large house of Camellias is magnificently rich in bloom, and such bloom as no man had ever seen in more varied richness. The fresh soil to the borders, the enormous quantities of water they use for the tops and bottoms, and the extraordinary degree of ripeness to which the more extraordinary heat of last summer brought on the buds, together with the “retarding process,” as some of our fruitful friends would say, of this long, long, severe winter, have brought out the magic power of their force and influence on the bloom of Camellias to such an extent as will render the records of 1860 for ever memorable in the annals of gardening.

Let any one who is at all conversant with the subject go and see the effects of those influences on the flowers of the specimen plants which have been planted out in the beds in the large house—such as those of *Donckelaari*, *Chandleri*, and *Elegans* in particular; and those of *Woodsii*, *Coralina*, *Imbricata*, and the old Double White in general; and then say who can properly judge the effect of keeping pace with the march of improvement on the taste and fashion of the rising race of garden admirers and patrons of modern civilisation.

One plant of *Donckelaari*, 6 feet high by 4 feet wide, is one mass of bloom, and every flower as richly variegated as the old *variegata*. Another plant of it in a pot, and still larger, is equally variegated. *Chandleri*, 10 feet by 8 feet, has two hundred flowers without one plain one among them, the whole being as much variegated as *Donckelaari*. Mr. Alfred Chandler, who remembers the origin of this kind was present; and he confessed he never saw his namesake so uniformly variegated, or with such immense blossoms. Perhaps the grandest of all is *Elegans*. It is about 12 by 10 feet, with three or four hundred blossoms, and not one of them under five inches across; a great number being fully 6 inches in diameter, and perfectly variegated throughout with broad bands of white on the outer petals, and blotched on the inner ones, the centre of many of the flowers being nearly Anemone-shaped—all these are seen as often as not with the flowers quite plain. The old plant of *Coralina* is 12 by 10 feet, and has two thousand flowers this season. The original *Althæflora* is 10 by 5 feet: it was in bloom at Christmas, and will last to the end of the Camellia season. *Woodsii*, 12 by 12 feet, with four hundred blooms, and not a button among them. Young plants, and unhealthy ones of *Woodsii*, have the centre of the flowers in hard buttons; it is the next longest to hold in bloom after *Althæflora*. *Double White*, 6 feet by 4, with larger and smaller sizes of the same in large pots, were equally fine.

The finest Camellias that ever came from China are the two last sent by Mr. Fortune. One called the *Cup of Beauty*, is here 5 feet high in a No. 8-pot; it was cut down to five feet for grafts. The other is called *Princess Frederick William of Prussia*. They were bought last year—the *Cup of Beauty* in April, and the *Princess* much later, or, perhaps, at the sale of Mr. Fortune's plants: yet already there are hard upon four hundred plants of each on sale here; also the five-foot *Cup of Beauty*, which would make one of the handsomest wedding presents in England.

But I mean to begin with the best of the new kinds, as I did with the Hyacinths at Highgate, and then to give lists of the best, and cheapest, and second cheapest best; also to warrant them on my own responsibility to be just as good as I put them down, and some of them rather better than the prices would indicate.

The newest, or, at least, the best of them are the following:—*Caryophylloides*, which means Carnation-like; it is a fine blush white with rosy stripes, and comes nearest to *Albertus* of all the Carnation ones; but a much finer one than either of them in the same way is a new seedling of Messrs. Milne & Co.'s own raising, which bloomed there this spring. All the seedlings of Messrs. Chandler & Son were bought by the firm of Milne & Co. with the rest of the stock, and the lawful way to introduce this seedling is to say that it is the best Camellia that was ever raised by the Chandlers. It is of the same size and shape as the old Double White Camellia, or *Fimbriata*, of a deeper blush ground colour than *Albertus*, and the best Carnation and Picotee-marked of all the race. This is the first light-ground British seedling which excels the Chinese crosses of that strain; and we may put down *Albertus* as the best of them on the side of the Chinese, and *Princess Frederick William* the best in a deeper ground colour.

There is another of their seedlings of the same age, which is a dark crimson, as double as a Rose and as

regular as a Dahlia. Neither of them, I believe, are yet finally named. There is another older seedling, which I mentioned last year as standing against the back wall of the large house, which is of a deep coral colour, and will rank amongst the first Camellias of the age. This last, and probably the other two, are figured, and will appear in a new monthly work on popular flowers, which is coming out under the leadership of Mr. Moore, of the Chelsea Physic Gardens, and of the Floricultural Committee of the Horticultural Society. One of the three will be named *Codyana*, after Mr. Richard Cody, who attended the Camellias for the Messrs. Chandler for the space of thirty-six years, and who is doing them now for the firm of Milne & Co. Many gardeners, and many more nurserymen of the highest class, owe their knowledge of the proper culture and propagation of Camellias to Mr. Cody; and, as if to allay the pride of caste, one of the oldest of our writers on gardening has now to draw on Mr. Cody's experience to make up a very practical article on Camellias for the readers of *THE COTTAGE GARDENER*; and may the Cody mantle fall upon all who will be wise enough to buy Camellia *Codyana* at the first starting off.

There are many more seedlings of that batch to bloom yet, and some have bloomed which do not come into my net for first-rate new ones. Instead of the old maxim of protection of scarce and dear, or fifty plants of a new Camellia at two guineas the piece, they now speak of five hundred of each of these three at less than a guinea each—that is, when they mean to let them out in earnest. That is just as I do with my own seedlings; I never hand them over to my agents till I have them by the hundred, and I tie their hands not to exceed a certain figure for any one of them; then, if they should not please, there is little harm done, and the same buyers will come back again and again for every one of every batch of cheap seedlings, be they Camellias, Dahlias, Roses, Pelargoniums, or Geraniums. There are some few breeders whose seedlings I would not venture on as gifts, because the very high prices assure me the sorts are not worth much, else they would be sold cheap. It is the old tune of fifty at two guineas a-piece against five hundred at 10s. each.

But to go on with the newer Camellias. *Washingtonia* in the way of *Queen Victoria*, with a white stripe in each petal. *Pictorum Roseum*, fine form, and the centre petals tipped white. *Danlop's Imbricata*, lighter than the old *Imbricata*, and regular carnation on the edges. *Danlop's Americana*, carnation and hexangular. *Formosa alba*, quite as large as the old Double White. *Emelina alba*, blush white and imbricated. *Lady Mary Labouchere*, very fine deep rose, with broad, flat petals. *Beali Palmeri*, an improvement on *Beali*. *Queen of Denmark*, rosy crimson, with white stripes. *Princess Frederick William*, aforesaid, imbricated and perfect carnation. *Cup of Beauty*, ditto, a large pure white, streaked faintly with pink. *Pearl*, white as the driven snow, and shape of *Imbricata*. *Mrs. Abbey Wilder*, white, with red stripes. *Gulielma Ottoleni*, bright glossy cherry, striped with white. *Egeria Humbert*, a fine rosy imbricated bloom; and *Adelina Benvenuti*, a large, handsome white flower, blotched with rose.

The following are the cream of the cheapest Camellias, taken by the dozen:—*Double White*, *Beali*, *Imbricata*, *Carswelliana*, *Chandleri*, *Lady Hume's Blush*, *Donckelaari*, *Variegata* or *Double Striped*, *Althæflora*, *Coralina*, *Elegans*, and *Fimbriata*.

And these the best of the next cheapest:—*Albertus*, *Archduchess Augusta*, *Catherine Lough*, *Dante*, *Emilio Camproni*, *Daviesii*, *Jubilee*, *Dampieri*, *Francofortensis*, *Marchioness of Exeter*, *Magnifica Rubra*, *Optima*, *Miranda Rosea*, *Matholiana*, *Pulaski*, *Queen Victoria*, *Reine des Fleurs*, *Reticulata*, *Vandesia Rosea*, the nearest to *Marchioness of Exeter*, the *Marchioness* being next to *Elegans*.

The next selection is from the 5s. kinds and upwards,

or 7s. 6d. each:—*Princess Bacchiocchi*, a beautiful new carmine, with white stripes. *Princess Frederick William of Prussia*, aforesaid. *Cup of Beauty*, ditto. *Queen of Denmark*. *Valtevedo*, the best rose. *Countess of Orkney*, *Dante*, *Formosa* (Chandlers'), *Daniel Webster*, *Caryophylloides*, and *Adelina Benvenuti*.

There are a few of the new ones as high as a guinea and half a guinea, but as these could only be mentioned singly I must leave them for another year; but their names are all in the list of new ones above the selections.

The best of these selections are now in bloom in the Experimental Garden, but the plants are very small, and no one can judge one-tenth of the Camellias from seeing small plants of them in bloom, either in the nurseries, or in private collections. However, with the exception of a few of the very newest, for which I confide in the opinion of Mr. Cody, their foreman among Camellias, I know the whole "by heart" from good specimen plants. I know, also, there are twenty or twenty-five kinds just as good as those I have selected at the same prices, but they are not better, and to multiply names is not my forte. I would rather tell of a few more of their fine old specimens, such as the first *Double White*, on entering the house, which is 8 feet by 8 feet, and blooming down to the ground. *Palmer's Perfection*, in a pot, and 6 feet by 4 feet. *Marchioness of Exeter*, from 6 feet to 7 feet high, and 5 feet through, and several others of the same size, and larger, all on sale, if one chooses to go to their full value.

Then, to say that all these Camellias are not as hardy as Portugal Laurels, would be going against the plainest fact on the spot. There are six full-grown specimen plants from 9 feet to 12 feet high, and as much in width, on the north side of the boundary-wall of this nursery, which have had no protection whatever for the last twenty or thirty years, and where the sun has not played much upon them; they are now as glossy in the leaves as any plants I know, and as full of flower-bud. But no Camellia flower will ever do out of doors in England; the least cold, or wind, or sun, would drive the colours out of the petals. Even under glass the bloom ought to be shaded. The large house is shaded with a new thin canvass from Manchester, about a yard wide, and called "Brown's Floral Shading."

Outside the large house is a range of thirteen-light pits, with over a thousand young Camellias in large 60-pots, and all plunged over the pots in spent tan, just as the *Minims*, *Harkaway*, and *Baron Hugels* were done the other week at the Experimental. It is astonishing how good it is to plunge little pots for nursing things. They say here the labour is only one-tenth of what would be necessary if the pots were not plunged, and that it is 75 per cent. more favourable to nursing than exposed pots. Mr. Cutbush had all his Hyacinths plunged in moss. But there is another thing in plunging which tells equally well; you may keep all kinds of plants from rooting out under the pots, for one season, by plunging the pots over the rim. All roots come to the surface by that plan, or rather all plants will send up new roots from the old ones, and they will run over the top of the pots faster than they would escape out through the bottom-hole. That is a certain effect of plunging pot plants over the rim of the pots; but why it is so, no man could ever tell. There is nothing about roots underground, or in the air, but has been investigated, and is perfectly well understood, except this one thing, which is a fix.

Another division of the pit with twelve lights and 150 small 60-pots in each, full of newly-potted and newly-rooted single Camellias for stocks. In the new propagating-house were 1000 grafted Camellias, last month's work, and from 5000 to 7000 rooted cuttings of last autumn in 32-pots, waiting to be potted off. There are eight runs of cold pits, each run with sixteen lights full of stools of best Camellias for supplying grafts. They were formerly for inarching in them; but the march of improvement has put inarching on the shelf, and grafting

by the thousand is now resorted to where inarching by the hundred used to suffice, and that is how Camellias can now be sold so very cheap. I recollect the time when you could not get a plant worth a straw under half a guinea, and from that to three half guineas for very ordinary plants. The number of inarched plants from these eight pits averaged, yearly, 2500 for more than twenty years, by grafting the young wood from the same space fifteen to twenty thousand plants will be yearly worked.

Vines in pots seem the next in degree to Camellias for trade here, thousands of the best kinds from eyes are plunged in small pots as above on tan-beds just now. Mr. Milne is accounted a don about London at that branch of rocking the cradle. Bedding plants, popular exhibition plants, seem the next degree in stock. Seedling Gloxinias hard upon three thousand plants. Begonias they are half mad upon, and they mean to keep up the old charter in Chrysanthemums. Messrs. Chandlers used to be noted for Chrysanthemums before Mr. Salter was revolutionised out of France, and before our champion Bird, of Stoke Newington, put his talents into that trade. The whole family, new and old, and Pompones, hybrids and liliputians, are now rooted by the thousand. *Lapageria rosea*, propagated by layering every other joint in strong heat, as Wistaria is, and has been done in cold pits, and open air, for the last thirty-five years, and with equal success. *Isabella Grey Rose* on its own roots by the hundreds.

Mr. Robson, the cottage-farmer and pot-provider, has said that Roses come best on their own roots; and Mr. Appleby, the very essence of the florists' strain, opens his Rhododendron-budget with the patent truth that "a regular uniform mixture (of colours) is no variety;" and yet florists have been aiming at variety by planting their own strains in "uniform mixtures" since I was born. But the Italian flower garden in front of this nursery has been, and is to continue to be, planted according to the harmony of contrast and of combination; and the propagation is on the principle of everything on its own roots, except the Camellia, which is an exception to the general rule, and does best on the single kind. *Monochætum ensiferum*, that rosy charmer which was before us the other week, is here also by the hundred, as is *Pleroma elegans*, and both as cheap as *Flower of the Day* Geranium. The India-rubber plant, *Ficus elasticus*, is in wonderful demand for London rooms, and is propagated here from single eyes like the Vine, but with one huge leaf to each bud; and the magnificent *Cyanophyllum* just in the same way, and just as freely. Dragon trees from 18 inches to a yard high, the finest and fieriest I ever saw, and the best grown—it is *Dracæna terminalis*. *Centradenia grandifolia*, quite new, broad purple-shaded leaves, and flowers in the way of *rosea*. *Campylobotris argyreneura*, is one of the best purple fine-leaved plants. *Dipladenia crassinoda*. Beds and beds of *Eranthemum pulchellum*, struck at the end of autumn after the flower-buds were formed, have bloomed all the winter in 48-sized pots, just like Hydrangeas. A large stock of *Vallota purpurea*. A new seedling Begonia in the right direction—that is, with smooth, medium-sized, illustrated leaves; it is between *Marshallii* from Leeds and *Madame Allwardt* from the Clapton Nursery—the three being superior to *Rex*. Two excellent strains of fringed *Primula sinensis*, white and red. *Begonia Lapeyrousei*, a most capital winter, or all the winter-flowering kind—a dwarf stocky one, with short-jointed, strong, gouty stems, and large loose bunches of rosy flowers the whole winter; to be grown, bloomed, cut down, and grown and bloomed again and again, exactly like a good Pelargonium Geranium—that is, any of the good greenhouse kinds.

One whole house, perhaps forty or fifty feet long, filled entirely with variegated Geraniums, a perfect sight; two thousand *Flower of the Day*, all of one uniform size; hundreds of *Brilliant* the same. I mean ten hundreds

and scores of them in No. 32-pots for specimens. *Bijou* (Bisho) is one they speak highly of, as proved last year in their Italian Flower Garden. Variegated *Prince of Orange*, *Lady Plymouth*, and *Dandy*, three evidences against the stupidity of calling the variegated *Alyssum* a *Koniga*. Each of these three variegated representing that form of three wild Cape Geraniums, and more different from the wildings than the variegated form of the *Alyssum* is from the common green sweet-scented kind. *Dandy* is to be the best-foot-foremost plant of this season for pincushion-beds, and *Oxalis floribunda* is to be the genteel edging plant to beds of minimum Geraniums, as *Dandy*, *Baron Hugel*, *Harkaway*, *Golden Chain*, *Cloth of Gold*, the *Queen's Favourite*, and most of the other minimum Geraniums.

No plant is easier to keep and to propagate than that *Oxalis*, and there is a large stock of it in this nursery.

Mr. Kinghorn's *Christine* Geranium is an excellent bedder, with a shade between the *Cerise* and the *Lucia rosea* breeds. They have it in quantity. Also, *Ivy-leaf*, *Tom Thumbs*, and all.

The Fern-house and show-house very gay with spring flowers. One the finest plants of medium-sized *Acacia armata* I ever saw, and in a half forcing-house, or say a house about 50° at night, a host of early spring plants of the bettermost class are there, after being cut down on purpose, or for cuttings, so as to get a very early growth, and an earlier setting of bloom-buds than common, so as to come in next winter and early in the spring with little or no forcing. All the *Epacris*es belong to that class; all dwarf *Acacias*, *Boronias*, *Monochaetum ensiferum*, *Croweas*, *Pleromas*, *Tetrathecas*, *Corraas*, and, indeed, most of the May-blooming, greenhouse, woody plants.

Out of doors—*Magnolia grandiflora*; large *Hollies*; long standards of the handsome variegated *Negundo Ivy*, in pots, up to 10 feet high in abundance; whole quarters of trained and maiden and orchard-house fruit trees; all round the walls filled with the best kinds; a very superior *Privet*, called *Ovatifolia*; Vines, *Pampas Grass*, *Americans*, *Yuccas*, and the usual run of pot and border evergreens, in their best looks, and, as at Highgate, a rattling good trade, and the largest quantity of *Sea-kale* for the trade I ever saw. The *Vauxhall men* were always celebrated for that root.

Mr. Alfred Chandler, who made the drawings and coloured them for Chandler & Booth's Illustrations, &c., of the *Camellias*, has just finished two coloured drawings on tinted paper of *Camellia elegans*, showing the common plain-coloured flowers and the present extraordinary degree of variegated of all the hundreds of flowers on the large specimen plants, and of the present state of the wonderful variegation of the large *Chandleri* *Camellia*. As an artist Mr. Chandler is the first hand in Europe on the *Camellia*; and either of those drawings, as they stand, might be mistaken for a natural branch in bloom at a short distance. Both these drawings are to be sent to the Royal Academy to be exhibited there; and as few have ever seen these two *Camellias* in such richness and perfection, all who can embrace the opportunity ought to see the plants themselves before they are out of bloom, as they may not be seen to such advantage again for a lifetime.

D. BEATON.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(Continued from page 378.)

THE COW.

OPINIONS and individual tastes differ very much in the choice of a cow. In the west of England the Devon and Hereford prevail; the latter ranging northward into Cheshire, with, however, a considerable mixture of other

breeds, as well as crosses in every imaginable way. In Suffolk a hardy polled breed is the prevailing kind in general use; while in Sussex a formidable "long-horned" animal of large size is common, the bullocks of that breed being often worked. This breed, though dangerous-looking by the length of their horns, are perhaps the most docile of any—certainly they are much more so than the polled Suffolk cow, which is a restless animal, and not well adapted for a "single cow," as a quiet animal is as much a point to be looked at as appearance or a good milker. In fact, all these qualities ought to be blended in the single cow; and they are very often to be found in some of the judicious crosses to be met with—not the mongrel heterogeneous mixtures so often seen, but say a cross between an Ayrshire and Alderney makes a nice little cow; the hardihood of the one blends well with the rich milking qualities of the other. A cross with the "Short-horn" produces a larger animal; but I would not advise the pure Alderney to be kept on any but very sheltered warm situations, and only where the food is good and abundant. On the dry, chalky, or gravelly soils they will not do, and at the best their appearance is never so good as that of most other breeds; but the inexperienced in such matters ought to consult some respectable dealer to get him such a cow as has been proved by the impartial opinion of those in the neighbourhood to answer best, as good advice in that way ought not to be despised. It is all very well for the wealthy and spirited to introduce their favourite breeds, or, it may be, their supposed improved implements and machinery into the husbandry of the district; but the man of limited means, anxious to show a respectable balance-sheet at the end of the year, ought to be more careful. The best practical farmers in the neighbourhood are those best qualified to give advice, and not the more fashionable amateur. The one, most likely, has devoted a long life to rural affairs, and his prospering with it proves his judgment to be good; the other, most likely, draws heavily on his banker to make things meet. It would, therefore, be better for the selection of a cow to be left to a respectable dealer; stipulating, of course, that she must not be an old one, and that she is quiet and tractable, and likely to settle in her solitary quarters. It is not often that a good cow that has been accustomed to graze alone is offered for sale, their numbers being few; and those that are for sale may often be suspected of not answering. It would, therefore, be better to buy one out of a herd rather than have the single one, unless recommended from a source to be relied upon.

THE COW-HOUSE.

Much difference of opinion exists on this point. In some parts of England the milk cows are tied up in a rather close shut-in building almost all the winter; while in others they have the liberty of the farmyard, with a covered shed at one side, usually the north side of it, for them to roam in; and as this plan seems to answer every purpose, it might be taken as a guide for those having only one cow to keep. A small yard might contain the pigstye and the cow-shed; the cow-shed being on the north side of it, and the piggery on the east or west. A thatched roof is better than either slates or tiles for the cow-shed; but if that be inconvenient, let it be arranged for some straw or other litter to be put under the slates, to keep it cool in summer and warm in winter. A wall around a yard is much the best way, and a gate large enough to admit a cart easily to carry out the dung, &c. There ought also to be a building adjoining the cow-shed for hay, roots, or anything else that it may be necessary to store away. The cow-shed itself might also be so arranged as to have temporary doors or tarpaulin put against the opening at such times as when the cow calves, when a little extra warmth is required; but even this is not so necessary as many suppose. Plenty of fresh air

is of more service to the cow than coddling; and, excepting at calving time, the run of the yard and the open shed, if they choose, is all that is wanted. J. ROBSON.

(To be continued.)

CHRYSANTHEMUM CULTURE.

HAVING found it troublesome to grow Chrysanthemums well in years gone by upon the old system of keeping them in pots the whole summer, I determined to try an experiment, the result of which has been a decided success, with far less labour.

My plan is the following:—Take cuttings the last week in April or first week in May, strike them *without* bottom heat; and when well rooted get them at once into three or four-inch pots, putting two plants in each pot, if bushy specimens are wanted. I say nothing of compost, &c., they being an old song with gardeners. Return the plants to the cold frame, giving plenty of air after the first few days, and in a month or so they will be ready for the trial.

I choose an open place in the kitchen garden, turn the plants out of their pots, and plant them out twenty inches apart, disturbing the balls as little as possible; give a good watering, and leave them for the present, merely giving water once or twice should the season prove dry. At the latter end of July or beginning of August I then take them up, finding the roots to have gone but a little way from the balls, place them in their flowering pots, and set them for a week on the north side of a wall to keep them from the sun, and afterwards treat as all other potted Chrysanthemums.

The advantages are—1st. Late striking, late planting out, making up for lost time. 2nd. A saving of time in watering in the hottest and busiest season, usually a time when Chrysanthemums are neglected, and thereby injured; and last, though not least, securing well-bloomed plants furnished with clean, healthy foliage from the very bottom of the stems.—D. H.

POTTED VINES IN FRAMES—NUMBER OF PINES IN A SMALL HOUSE.

FIRST. I have some young Vines, in pots, one year from the eye. They did not do what I expected last summer; not growing more than two feet in height. I had them in 48 and 32-sized pots, in a common frame and light, and stable manure under them. Perhaps I gave them liquid manure too strong for such little things; but, be that as it may, they are not more than two feet high, and the wood quite brown and hard. Now, how am I to get them as much larger as possible in the coming summer, as I want some of them to fruit the summer after this—that is, 1861? The sorts are, *Sweetwater*, *Black Hamburgh*, and *White Muscadine*. My means are a common garden-frame and light, and some stable manure and leaves, but not in abundance. I have also a cool greenhouse and a wall eight feet high, with south or south-west aspect. I can also give them any sort of soil or manure that you recommend.

Second. How many Pines can I grow without their injuring each other, in a small house twelve feet square? but I shall want a path at the back to water and stir the bed, which is to be of leaves, and a hot-water tank under. I mean fruiting Pines only, the sorts mostly, if not all, *Queens*. I have no Pines at present. I am promised a few strong plants when I am ready for them. I do not think of putting up a pinery until the autumn, so as to be prepared for another winter; and then I intend to heat by hot water, in a tank heated by a boiler over my oven furnace, it will then cost little or nothing for fuel. I have got full particulars for Pine culture in the *Cottage Gardeners' Dictionary*, but I want to know the number I may grow with safety in such a place in No. 8-pots?—A COUNTRY BAKER.

[We thoroughly sympathise with you in your gardening efforts. We would not like to damp any one of your desires or anticipations, but if we speak what we feel, it would be to hint the propriety of making yourself master of Vine treatment before you did much with Pine growing. So far as we can discover from the data given to us, you would need most of the glass at your disposal to make the most of your Vines in pots. If you find the roots of the Vines pretty good, that will be a proof that you have not injured them with manure waterings; but that is easily done, especially with young plants. If you have nothing

of the sort now in your cool greenhouse, and have plenty of Vines, we should certainly plant as many out as would go under the roof four feet apart. They would make good shoots the ensuing summer. Be assured that mere length is not of the most importance, when fruiting in pots is the object. Those you intend for this object we would treat thus, not doing them, perhaps, in the most scientific way, but simply and less liable to be misunderstood. Each of these Vines intended for this pot culture we would cut down to the lowest bud or two. In a few days we would take the pots to the bench, and shake carefully almost the whole soil from the roots, and not remove any roots except those that are injured or decayed. Pack the roots carefully in very fibry well aired loam, with just a sprinkling of leaf mould, and some bits of charcoal or lime rubbish to keep the soil open. Set the plants half plunged in your dung-bed, water with water at 75°, and keep plenty of air on. As soon as the buds show signs of swelling, sink the pots a little lower, provided the heat is not higher than 80° at their base. The top temperature being, as yet, seldom, except in sunshine, being about 50° to 55°. As the shoot, or shoots, lengthen, rub off all but one. By the time that shoot is eight or twelve inches long, we should expect the plants in 32-pots would need a 16 pot. Rough fibry loam being again the chief compost, and that well aired and heated so that the roots shall receive no check, taking out only one plant at a time. These shoots will grow most stubby if trained against the light; therefore, we would plunge the pot near the back of your bed, and bring the shoots to the front, at the distance of a foot from the glass. A few sticks stuck in the bed will enable you to do this.

As the shoots grow, all the laterals that appear at the joints are merely to be stopped, not removed. By the time these shoots were four feet or five feet long, we should expect the pots to be full of roots again, and this time we would give them No. 8-pots, and would have all the beds turned over, with, perhaps, a layer of additional sweet dung at the bottom. At this potting we would use a number of pieces of bones—say, a good handful, about the size of Walnuts, for drainage; and we would also use a couple of handfuls of smaller pieces from bones not too fresh, mixed with the soil for each pot. We would, also, in potting, take care that the old ball and the new soil did not rise within a couple of inches at least of the rim of the pot, to permit several top dressings afterwards. The potting must be done firm. These pots plunged in a mild bottom heat, will cause the shoots to progress freely. As the laterals push after being stopped at the base of the shoot, they must be stopped again, but not removed. The more leaves you can find light for at each joint, the stronger and thicker will your stem be, and that is of more importance than mere length.

At this stage you will not be able to have more at the most than three Vines in a light. As the shoots get as long as the width of the frame, turn them round a little and let them go backwards. We do not care about stopping them when thus treated and trained. When growing in the usual way—that is, from south to north, we would pinch out the point when four feet long, so as to increase the strength of the shoot by giving strength to the laterals below; choosing one shoot again for the leader, and stopping again at the other four feet. But when trained the reverse way, the shoot will not so much need this stopping. The object of stopping is to concentrate strong, mature, fruitful wood near home, at the bottom of the cane or shoot. Without such attention, the finest wood and the plumpest buds will be at no great distance from the point; and, therefore, to secure these, a long rod twisted round stakes will be necessary when fruiting. By stopping, or the course of training recommended, as much fruit may be had from a shoot from four to six feet in length, as from one of twelve or more feet.

There will be little room for the shoots after turning them back again. By this time the bed will be cooled, and, therefore, the roots will receive little check by taking the pots out of the bed. If the bed is at all warm, lift the pots out of it, and let them stand on its surface, or move the material from round them for a few days before you take the plants out, so that no check be given. Attention to these minutiae is the great secret of success. Now, the best place you could take your Vines to, would be the twelve-foot house you propose for your Pines. We will suppose it is about August when the Vines thus want moving. Probably the end of July, or earlier, according to their growth. The extra heat and moisture you could give them then would just suit them. Care must be taken that the leaves shall expose their upper surface to the light, however you place or

train them in the house. We have seen Vines greatly injured by placing them in fresh quarters, and so carelessly, that the back of the leaf was exposed to the sunbeams. If that cannot be thoroughly avoided in the case of every leaf, syringing and a little shading and a moist atmosphere should be resorted to, in order that no check be given. The latter (a moist atmosphere) is always necessary for a growing plant when removed to a common house from a hotbed.

If this place cannot be given, as much as possible of a similar treatment should be given the plants in the greenhouse. In either case, if growing freely, we would keep them under glass until the middle or end of September. Before that we would begin to reduce the number of the laterals, taking off a fourth or so at a time, at an interval of five or six days, so as not too much to check growth. About the time specified, or earlier, if the canes or stems are strong, remove the pots to the bottom of the south wall, and fasten the stems to it, so as to have all the sun possible. A dull day should be chosen for moving, or a very slight shade given for a day or two, if the weather is bright. All laterals should, ere long, be removed, leaving nothing at each joint but the main large leaf. The object of this is to lessen growth, and hasten the thorough maturation of the buds and wood. The keeping them at first was for the object of securing strength and vigour of stem; but mere strength would be of no avail, so far as fruit was concerned, unless the wood were well ripened. We remove these laterals, therefore, and expose the wood and main leaves fully to the sun, for the very purpose of retarding growth and maturing that thoroughly that has been already made.

We have avoided all complex mixtures of soils, as nothing suits better than good hazel loam, if top spit of a pasture, and sweetened for four or six months all the better, used rough, with a few bits of bones, and bits of charcoal, and lime rubbish, to keep it open. Strength can be given by weak manure waterings, varying the kinds of manure applied, but making sure it is weak rather than strong. The strength has often been referred to of late. From the time, however, that the pots are put against the wall, the plants should be prevented flagging; but not a drop more water than is necessary for that should be given them. As we may expect heavy rains in September and October, the pots should be covered with a slate, a tile, a board, &c., in a slanting position to throw the rains past the pots, instead of letting them fall on them. If deemed necessary, a little fresh surfacing may be given a week or two before taking the plants out. When cold nights come and leaves get withered and fall, the pots should be moved to the back of the wall or an open shed, where the pots can be plunged in litter up to their rims, and the surface covered with litter to prevent any frost entering. The tops may also receive a little protection in severe weather.

When it is desirable to start them into growth, pick out carefully a little of the surface soil, and fresh dress with rich compost,—such as loam and rotten dung,—to within three-quarters of an inch of the top. Place them in the greenhouse at first, and then, if anxious to forward them, take them when started into the place designed for the Pines. We say nothing of fruiting them in a hotbed, for, though that is often done, we fear if attempted at all early, some of the minutiae of attendance, especially in dull weather, would be rather troublesome. Vine-growing, under hotbeds, does best when the Vines are merely helped to come a little earlier than they would do in the open air. To give your Vines full justice after all the supposed care, they should have such a place as you propose for Pines, and then you could give the roots a gentle heat by plunging the pots, and keep the tops by means of air some 10° lower in temperature. This would make them push strong, and you might have Grapes pretty early. If you think such minutiae as we have referred to, too troublesome, though in reality there is less trouble in the doing than in reading or writing about them, then we would advise planting out Vines in a good soil, both for your greenhouse and Pine-house. The plants you turned out now would yield you some fruit the second season, and more and more afterwards.

With the attention described, however, you may have a fair crop in pots in 1861, but the Vines will be of little use afterwards. Their energies will be exhausted by a good crop, and you will require to begin anew. If such is your object, you cannot put in more eyes too soon.

2nd. We do not think you could fruit more than from twelve to sixteen Pine plants of a good size in such a twelve-foot house, after allowing a pathway behind. We are somewhat doubtful of your plan answering; but we could not decide unless we knew all about the construction of your oven, and whether you kept your

oven pretty constantly employed. If you had to make a fire on purpose to heat the tank for the Pines, we fear that you would find the fuel expensive. We know of a case or two where, when continuous heat was wanted for a similar purpose, the idea had to be relinquished. We know of several cases where a good crop of Grapes has been obtained in houses in September, the floors of which were over ovens. In neither case did it strike us that the heat would have been sufficient to heat a tank regularly for Pines in winter. Of course, with a thinner roof to the oven, and frequent firing, there could be no difficulty in the matter; but, then the firing, if to be used extra, would be a rather serious affair. The regular heat you may be able to command must determine you as to whether you can manage Pines in such a position successfully.

We so thoroughly wish you every success, that if we can be of any service, we shall be very glad to assist you.]

GROWING THE SCARLET LOBELIA AND MUSK PLANT.

TALL Lobelias do not do well in my garden, the soil is too dry for them. May I place the pots in water, and when should I put them to stand there—I mean at what stage of growth? They and Mimulus, I should think, would both bear the treatment of Agapanthus.—KATE.

[In olden times these scarlet Lobelias were grown extensively in pots. We have grown them that way for some years, with much of the treatment of Balsams. After Midsummer, and when the flowers were about opening, we had the pots standing in saucers of water as you suggest. Mimulus the same, but the Mimulus is more of a spring and autumn flower, and requires no water under it then.]

THE DWARF MARIGOLD AS A SUBSTITUTE FOR THE CALCEOLARIA.

HAVING noticed several inquiries in THE COTTAGE GARDENER respecting a substitute for the yellow Calceolaria, I beg to say I have grown the dwarf Marigold with success, both as an edging and for ribbon-borders since it first came out, and I can with confidence recommend it.

I have used it as an edging to the Ageratum with success, and in a ribbon-border planted thus:—For the first row, the white Alyssum; then a row of *Lobelia speciosa*; then the dwarf Marigold; next Scarlet Geranium and Ageratum. This combination had a very good effect, and continued in full bloom from June till the frost cut the plants off.

It is also a good point in favour of the Marigold that it will remove when in full flower without flagging the least; so that you can keep a stock of it in the reserve garden to fill up any vacancies that may occur by keeping the flowers pinched out to within three weeks of the time you want them to flower. After that time they will continue in full flower the remaining part of the season by keeping the dead flowers picked off.

The way I usually adopt in raising these plants is very simple. I sow the seed in pans the latter end of March in gentle heat; prick off the seedlings in boxes as soon as large enough, and place them in gentle heat to establish them; then remove them into a cold frame just to protect them from frost. After which they will require nothing more till they are wanted for planting out.

The remainder to be transplanted in the reserve garden for succession, or to fill any beds where other plants had failed.—E. WELCH.

MUSHROOM CULTURE.

MR. BAILEY's remarks on the above are most useful to us amateurs, but he has omitted one or two important points. Will he kindly say what the dimensions of a bed will be made of his compost of four barrows of droppings, and one barrow of loam? How deep ought the bed to be made? Can he recommend any remedy for the ravages of woodlice? A toad is said to be a good guard, but toads are scarce at this season. Is there any means of poisoning them?—W. X. W.

[The dimensions of a Mushroom-bed may be of any size which room may dictate. The beds made as I described, are one foot deep and five feet wide. A toad is one of the best

antidotes against woodlice. These insects may be trapped in various ways, but are not easily poisoned that I am aware of.—HENRY BAILEY.]

THE RHODODENDRON.

(Continued from page 380.)

Summer Culture.—The great end to aim at is, first to keep the shrubs in health; and secondly, to cause them to produce flower-buds (previously to the winter season) every year. Some there are that I see flower, as it were, biennially—that is, every other year. This is a decided failure. They ought to flower in due season annually. To throw them into a blooming condition they must be supplied with moisture at the roots through the dry months of spring and summer. I have alluded to the effects of drought last summer; and I repeat it now that, if they are dried up at the roots, neither growth, foliage, nor buds will be perfected. As a matter of course, then, *the ground must be kept moist*, and that to a considerable depth. The most certain way is to form hollows of a diameter sufficient to embrace all the roots; then fill those hollows with water, and repeat the dose every three or four days as long as the dry weather lasts. For economising water and labour, if moss can be had cover the ground round each bush with it. Moss is a non-conductor of both heat and moisture; and it has also the effect of causing the fine roots to run near the surface. It also, in a great measure, prevents annual weeds from growing.

This point of keeping the roots moist being attended to, the next is to keep the ground clear of weeds. Annual or perennial weeds must be constantly waged war with, and the war should be commenced as soon as the enemies appear—there must be no delay. If the ground is not covered with moss it may be hoed and raked occasionally as it requires; but the hoe must not be struck deep, for if that is done the best roots will be injured, and consequently the growth impeded. Some writers recommend shading in summer; but I cannot agree with this, because shading prevents, in a great measure, the annual shoots from maturing and producing a state of florescence. Light and air are essential to induce stout growth and abundance of bloom. In very moist summers the growth is almost too strong; buds are formed early; and the excessive moisture causes them to start into a second growth towards the autumn; and that growth, being tender, is generally destroyed by frost. The only remedy I know for this grossness is to lift the plants as soon as the buds are formed, and thereby prevent the second growth from taking place. Sometimes one or two shoots take the lead, and thus rob the others of their due share of nutriment. These ought to be pruned in where shoots are scarce: or where there are plenty of shoots in a moderate strength, then these *gourmands* ought to be cut out entirely.

The above points of culture are all that are required to be attended to through the summer, with the exception of the use of the syringe or garden-barrow water-engine. After a dry, hot, dusty day, a strong shower of soft clear water overhead will clear off the dust from the leaves and refresh the bushes admirably.

Winter Culture.—If all has gone on well, and the shrubs are healthy and full of sound flower-buds, and the ground clear of weeds, then have ready a compost of sandy peat well mixed with cowdung in a powdery state. If moss is on the ground, remove it carefully and lay it aside, and then lay on the compost an inch thick, and replace the moss, fastening it down with rods and hooks. Do not dig amongst the bushes, for the spade is a bad tool amongst the fine tender roots of any American plants. The top dressing with this fine compost is the only dressing required.

Previously, however, to this winter dressing being applied, it would be advisable to see if any thinning is required. The bushes ought to stand quite clear of each other; and when they by growth begin to encroach upon each other, a general thinning should be resorted to. This thinning, however, will generally only require to be done about once in seven years, provided they are not planted too thickly. Whenever the thinning is done it ought to be done thoroughly; and in order to do it well every plant should be lifted and replanted, so as to allow space to grow till the septennial season arrives again. This work should be done early in the autumn, and the roots should be mulched to keep out frost. Old tanners' bark is an excellent material for this purpose where moss cannot be procured in sufficient quantity.

The greater part of the varieties of these beautiful shrubs are

hardy enough to bear our most severe winters; but some flower earlier than others, and the blossoms are often severely injured by late frosts. If these tender early sorts are grown they should be sheltered whenever such frosts are likely to take place. A frame of rods, umbrella fashion, fixed over the shrubs, and a mat or two thrown over them will generally be found a sufficient protection from a late frost. Nipping off seed-pods is a desirable point to attend to, unless seed is wanted. This should be done as soon as they are formed in order to have the desired effect. When they are left on for any length of time they injure the growth of the young shoots by taking the strength of the tree to perfect the seed; and, besides that, they indicate either a want of time, or, I fear, too often a carelessness on the part of the cultivator. They disfigure the appearance of the tree, and often prevent flowering-buds being formed for the following year. Therefore, I say, off with them without delay as soon as they appear.

Pruning.—This operation is resorted to for several purposes; the chief of which are to form handsome trees, to renew growth in old weak shoots, and to remove dead branches. The best season for this work is March. I have fixed on that month as being the best; because I have found that frequently when branches have been pruned in autumn or winter, that the part of the branch below the cut has perished down to the main stem, and also when cut late in spring the sap oozed out more freely than could be healthy for the tree. Old branches on old trees often become weak, producing small leaves and no flowers; or, if any, they are small both in size and number, the whole having the appearance of decrepid old age. Now if these are pruned in freely, and a good dressing of light rich compost applied to the roots, fresh young shoots will spring forth the ensuing summer, and the plants will improve in health and appearance every year afterwards. The shoots, however, should be thinned whilst young, and the strongest and best-placed left. Standard Rhododendrons are, when old, more than commonly subject to this apparent decrepitude, and may, by judicious pruning and fresh nutriment to the root, be renovated entirely. Very large bushes, also, are often found in this condition, arising, no doubt, in a great measure from the trees having exhausted the soil of all nutritive properties. In some cases I have noticed that the central and highest branches have failed in health and vigour, whilst the lower ones have continued healthy and blooming. Many of these side-branches, however, have made roots for themselves, and by them their health is sustained. Adopt the same method of pruning and adding rich light soil, and the fresh shoots will become as healthy as ever. If the soil is examined, it will generally be found to be as dry as dust, as hard as a brick, and as ungenial as possible. In such a soil in such a state how can a Rhododendron with its delicate fibrous roots thrive? These roots are not like the roots of an Oak or an Elm; they have no strength to ramble away from the old exhausted soil in search of fresh strength-giving pasture, and therefore the owner must supply it for them. It would also be advisable, when the pruning is done, to give the roots a large supply of water mixed with weak liquid manure, and then to lay on the covering of fresh soil.—T. APPLEBY.

(To be continued.)

ANNUAL FOR A DRY SHADED BED—FRENCH MARIGOLD.

UNDER the verandah of an old-fashioned cottage in the country I have three flower-beds. They get little sun, and I cannot afford to give them much water; consequently they are empty and unsightly. Is there any pretty annual that I could sow which would grow under such disadvantages, and give them a more cheerful appearance?

Where is the best place to get the French Marigold described by Mr. Taplin?—A CHEPSTOW SUBSCRIBER.

[*Silene pendula* grows and blooms beautifully the whole season, down in Suffolk, on the thatch of cottages where the birds have sown them in the first instance, and where they have sown themselves for years subsequently; and if there is an annual in the lists that will do for your dry beds, this is the one. It is a pretty pink flower, and the herbage grows as thick as grass.

You will find the beginning and the value of the dwarf French Marigold in THE COTTAGE GARDENER ten years back, but we have ceased to put much value on it; still it is useful and comes, or ought to come, true from seeds. Any of the London firms

who advertise in our columns can supply it. In poor soil we planted it three inches apart every way, and in rich beds not more than four inches. That was in 1845, 1846, and 1847, when we ceased growing it.]

FORCING-PIT INSIDE A VINERY.

I HAVE a pit 15 feet by 6 feet in the centre of a floor of a vinery, with hot water pipes (four-inch flow and return pipe), and crocks and cinders above them. Now, my idea is, that this pit if covered with sashes might be most useful in forcing flowers *all the winter*. Is it practicable, without adding to the heat of the vinery? There are Peach trees on the back wall; but the pit standing free of everything, and built of brick, I imagine nothing would be injured in the vinery. In fact, it will be a stove inside a vinery. The light is good, being large panes of glass.—A. CONNELL.

[There is no difficulty in doing what you propose, provided you never have the vinery hotter than from 40° to 45° until you want to start the Vines into bud. Air, therefore, will require to be left on night and day in mild weather, until you wish to excite them and the Peaches. Under such circumstances, the chief advantages of using your pit in the way you propose, are surrounding it at all times with an atmosphere averaging 10° above the freezing-point, the comfort of attending to everything in the day, shutting up the vinery for a short time when you wished to move the plants in the pit so as not to check them, and the pleasure of covering up, &c., under a glass roof. I mention the last, because with the heat at your command, you will need covering up in severe weather at Christmas, or so, if you would not start the vinery. Of course, when the Vines are starting you will regulate the heat accordingly. We have seen Cucumber and Melon-beds in vineries managed as you propose.]

THE FRENCH MARIGOLD AS A BEDDER.

As one of your correspondents appears to have had some difficulty in saving seed of the above, I beg to inform him I have found it seed very freely, as many of the flowers are semi-double; but the mice require watching, as they bite off the pods before the seed is ripe.

We obtained the seed first from some French house, through Mr. Ivery, of Peckham, but I have not been able to buy it true since, although I have had it from various seedsmen.

I sow about the middle of April, in drills, on a slight hotbed, with various other tender annuals, giving plenty of air as soon as the seeds begin to start; and as soon as the plants are large enough to handle, prick out in a cold frame, or under hoops and mats, as the plants only require keeping from the frost, to which they are as tender as a Heliotrope.

They are capital things to transplant, as they would pull up with a ball and a mass of roots, and will move as well when full grown as when small, even in the hottest weather.

I also sow on a raised sheltered bed early in May, and transplant direct into beds; they do quite as well as the others, but, of course, are later. They often flower when not more than two inches in height; and from the dwarf habit of the plant, and its compact growth, it answers better for a small or moderate-sized bed than for a very large one.

The French Marigold requires to be planted from four to six inches apart in the bed, and will then be an even mass of colour.

Of course, the style of growth is very different to the Calceolaria; but, as a yellow bed, it is perfect, and the weather has no effect on it, beginning to flower the first of the bedding plants, and continuing until frost.

I had a brown-flowering variety of the same habit, which substituted the brown Calceolaria; but it would occasionally sport into a taller growth, which I remedied by saving seed from the best, and pulling each chance tall one out as soon as I saw it taking the lead.—JAMES TAPLIN, *Teddesley Park Gardens*.

TRADE LISTS RECEIVED.

SUTTON'S FARMER'S MANUAL AND SEED LIST FOR 1860.—Although a trade list, yet it is very much more. There is, extending from page 19 to page 28, a mass of information relative to *Grasses* from the personal researches of Messrs. Sutton, and those of Professor Buckman, of the Royal Agricultural College,

Cirencester, that may be consulted with advantage by every farmer. It is information practical and useful, relative to all *Grasses* suitable for pasture, arable, woody, heath, marshy and sea-shore soils. There are various tables useful to farmers, a calendar of usual operations, and much good minor information, but we can only find room for the following extract, for the woodcut to illustrate which we are indebted to the courtesy of Messrs. Sutton.



As grown in Messrs. Suttons' trial-grounds.

"SORGHUM SACCHARATUM, OR HOLCUS SACCHARATUS.—We had the honour of introducing this valuable forage plant to our customers and the English public, five years since, and having now cultivated it several seasons, in various soils, we can most confidently recommend it for general cultivation. It thrives in any soil, if dug or forked deep; and while it is generally understood to prefer *wet* land, we have found it at least equally luxuriant in dry gravels and sand. On the Continent, it is usual to plant it 18 inches apart, under which circumstances it grows from 10 to 14 feet high; but in this country, for green food, we prefer 9 inches as the distance for the plants in the row, and the

rows about 18 inches apart. It may be dibbled or drilled easily, the seed being about the size of Furze, or Broom seed. Eight pounds of seed per acre will be found sufficient. Stable manure is suitable for this crop. The best *artificial* manures for it are Peruvian guano and superphosphate, which should be mixed with twice its bulk of road sand, and applied to the land when the seed is sown. It may be sown with safety and advantage from the middle of May till the end of June or middle of July. If sown in May, three heavy crops may be cut before the end of October. The seed usually lies in the ground several weeks, unless soaked twenty-four hours before sowing. Horses, sheep, pigs, and cow cattle are fond of it, and thrive upon it remarkably well. *Sorghum Saccharatum* greatly improves the flavour of butter from cows fed with it. Sheep also thrive remarkably well upon it.

"There are two other kinds of Sorghum, which are destitute of saccharine matter.

"For the information of those who have not yet known this plant, we subjoin the following remarks on its cultivation, &c. :—

"To Messrs. Sutton, Seedsmen, Reading, from Mr. Thomas Bowick, of Stoneleigh Abbey Farm.—The seed was dibbled May 20th, on good loamy soil, in rows 14 inches apart, and 8 inches between the plants. The braird was long in coming up, and it was nearly two months before it set off growing freely. However, with the warmth of July it flourished luxuriantly, every twenty-four hours showing a visible increase. Commenced cutting in the last week of the month, and then onwards to the end of September. All animals took it readily; but pigs appear to waste it more than either horses or cows. For horses we put it through the chaff-cutter, instead of their usual summer mixture of Vetches and straw. They did well with it; but a colt of weak digestion, which was attacked with colic, and required an injection to give relief, had a quantity of the hard woody stems in the stomach, which refused to move by other means. They were by this time getting too strong to cut by the scythe, and the Bean-hook was the better instrument. But, notwithstanding the hard and woody appearance of the stems, as the season advanced the sweetness sensibly increased. It is probable that its enthusiastic admirers have over-estimated the produce. We have repeatedly weighed portions after being cut for one day, and have found it average 35½ tons per acre, when fully grown. As a whole, it may be regarded as a very valuable addition for summer growth, especially for late soiling purposes, after the winter Vetches and Clovers are exhausted."

"From Mr. R. J. Chaundler, Crondall, November 28, 1859.—On the 24th of May, I drilled 4 lbs. of seeds on half an acre of land, the soil a deep mould, and not free in working, using 2 cwt. of Peruvian guano, and 2 cwt. of superphosphate of lime on the piece. It grew from 5 feet to 8 feet in height. At first, only two horses would eat it, but after (as I supposed) the saccharine matter was matured, all my horses (eighteen) ate it greedily, except about eight or ten inches at the bottom, which were not washed,—the pigs searched the yards for it eagerly. I found that weaning calves left every other food for it. For my horses I had it mixed with other green food, which plan I think is best for them."

SHADING GREENHOUSES—HEAT FOR GERMINATION.

I wish to shade a small greenhouse at little expense, and it has occurred to me that thin size laid on the inside of the glass would answer the purpose. Can you tell me whether, or not, it would obstruct the light too much? and if it would not, could I easily, and how best remove it when necessary? It is a pity that in the sugar of lead recipe the proper proportions are not given. Would it be easy to remove this when required? and how?

Perilla Nankinensis seed (vide page 345) has with me come up freely and very strong with the pan plunged in a dung-bed, which, by the thermometer, shows rather over 65° of bottom heat. So, also, have the purple *Petunia* and *Lobelia speciosa*, both two years old, and white *Petunia* of 1859, but *Enothera Drummondii nana*, in the same heat, has not stirred. I find this one of the most difficult seeds to germinate. My *Tritoma uvaria* seed after being in the ground seven weeks is just coming up. I at first kept it in a greenhouse; but for the last fortnight have had it plunged in a pit with a bottom heat of about 50°, which seems to have set it going.—R. B. P.

[The mere proportion of sugar of lead we deem of small

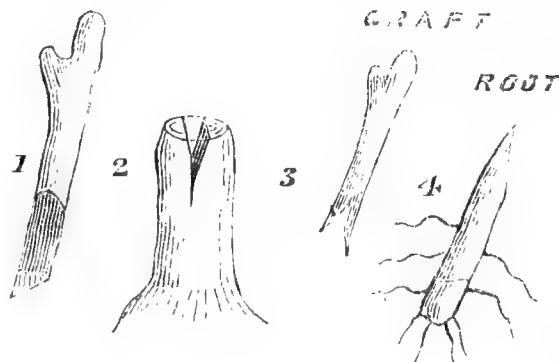
importance. Thin size will do as you propose, but more depends on the time and mode of putting it on than on preparing it. The size should be hot, and the glass should be dry and hot, and the sun shining. Warm water and a little soda and soap will remove it. We prefer generally using it outside. We often vary the mode. For instance: We take a quart of jelly size, not cake, and heated until it all melts, to that we add half a quarter of linseed oil, and a similar quantity of turpentine, stirring it well and allowing it to reach to 200°, or so. This is carried in the pot to the glass and put on as thinly and as quickly as possible with a brush. The effect resembles rough sheet. When a greater shade is required, we add a piece of powdered whitening between the size of a Hazel nut and a small Walnut. Sometimes we leave this plain, at other times we daub with the points of a dry brush after the mixture has been put on. For general purposes hot size is sufficient. Do not hurry the *Enothera*.]

FRUIT-ROOM AT BOWOOD.

MR. BAILEY, of Nuneham, has received a note from Mr. Spencer, of Bowood, asking him to correct an error which he (Mr. B.) inadvertently made respecting the Bowood fruit-room: which error is this—Mr. Bailey stated that Mr. Spencer's fruit-room was perfectly complete, but that it was placed at the back of the hothouses, which Mr. Spencer states is not so. "There is," he says, "a cavity surrounding it, and isolating it from the surrounding brick walls." Mr. Bailey regrets much that he should have made such a blunder, but it is three or four years since he was at Bowood, and his memory was strongly impressed that what he wrote was correct. Finding, however, from Mr. Spencer's communication, that he was in error, he begs to offer this correction and atonement.

GRAFTING THE GRAPE VINE.

As early in the spring as the ground can be got away from the stock to be grafted upon, clean away around the stem two or three inches deep, saw or cut off the Vine smooth; then prepare your graft (which should have been cut from the Vine in the early part of the winter) as shown in fig. 1.



If your stock is thick—say one inch or more in diameter—cut out a wedge (see fig. 2) to correspond with the wedge on graft fig. 1; if the stock be less than three quarters of an inch in diameter, then merely split down clean, as in the usual way of cleft-grafting; but if the graft be not held firmly, it is well to tie around the split with a bit of matting or strong thread, which will rot off before doing any damage. When you have inserted the graft, draw the earth in, and press firmly around the joint where operated upon, and up to and barely exposing the bud, filling in with dry mould if the earth be wet. Use no cement whatever; I believe it is a great evil.

Be sure to cover your graft with loose straw, or some kind of rubbish that will not pack tight; this is to keep the frost from hoisting out the graft, in case freezing occurs afterwards, which frequently is the case, as I have grafted in February sometimes, as well as to shade the bud and keep the air off somewhat—a necessary precaution. When the graft begins to grow, the natural or stock-suckers must be kept down, or they will soon rob the graft. I have usually succeeded in this way with about eighty per cent., while I hear universal complaints of failure. For root-grafting in the house my best success has been obtained when done in the saddle mode. And this done late in the spring when the Vines begin to grow.

In fig. 3 I give a rough sketch of my mode of root-grafting,

many of which, in one season, when set out in May, attain a growth of six feet. My impression is that if a Vine is transplanted in the spring, you may graft pretty successfully at any time that same spring.

By the former mode I could, a few weeks ago, have shown you *Logan, Delaware, North America; Pauline, New Hanover*, and others, from eight to fifteen feet growth, set last spring in ordinary stocks.

One important part has almost been overlooked; you must select stocks of as near similar wood: for instance, *Delaware* will hardly take at all on a rank *Fox*; while upon *Clinton* and our wild *Frost Grape* it takes very freely. Almost any kind will take upon *Isabella*.—(S. M., *American Gardener's Monthly*).

THE SCIENCE OF GARDENING.

(Continued from page 371.)

THERE are some other curious facts connected with buds, and of which the gardener takes advantage. Foremost among these is the power of some buds to produce stems and roots from their base at the same time. By this mode the Grape Vine and Hollyhock are propagated. Their power to do this depends upon the alburnous matter they contain, and, consequently, the strength of the plants thus produced depends upon what the gardener calls the well-ripened state of the wood on which the bud, or eye, grows. "I found," said Mr. Knight, "a very few grains of alburnum to be sufficient to support a bud of the Vine, and to occasion the formation of minute leaves and roots; but the early growth of such plants was extremely slender and feeble, as if they had sprung from small seeds; and the buds of the same plant, wholly detached from the alburnum, were incapable of retaining life. The quantity of alburnum being increased, the growth of the buds increased in the same proportion."—(*Hort. Soc. Trans.*, ii., 115.)

The only other curious fact we shall here notice, relates to what is known as the production of *adventitious buds*.

There exists, says Mr. Beaton, great difference of opinion respecting the true origin of that anomalous production—the purple Laburnum, *Cytisus Adami*. Some believe it to be a cross-bred plant between the common Laburnum and the purple Cytisus; while others as firmly assert that it must be the result of artificial treatment, although the facts respecting the process have escaped notice. The question is, therefore, still at issue. Mr. Adam, in whose nursery, near Vitry, in France, it was originated about the year 1825, believed it to have issued from a blind bud of the purple Cytisus inserted in the Laburnum as a stock in the common way, as related in the Annals of the Horticultural Society of Paris in 1830 by M. Poiteau. A deputation from the Society was sent, after Mr. Adam's death, to ascertain if the original plant was really a seedling or a budded plant. But the evidence of this députation was contrary to that of Mr. Adam's, and in favour of the cross-seedling side of the question.

Dr. Herbert suggested a very ingenious and probable hypothesis to account for the possible origin of this tree, which can easily be reconciled with the statement given by Mr. Adam, already referred to. Dr. Herbert believed that the shield of the purple Cytisus bud might be still alive after the bud itself was destroyed, and that this live portion might unite with the Laburnum stock in the absence of a bud; and that the new wood, or cellular matter, which formed over the wound, between the shield and the stock, might produce an incipient bud, in the absence of a leading bud; and if the new bud were from an intermixed matter formed by the two plants, it could hardly fail of partaking of the two natures—that is, of the Laburnum stock and the purple Cytisus bud, which, in reality, it does; and the question is, How are we to proceed in order to obtain similar productions between other allied plants? for we must still adhere to the fact that species can only mix by pollen, or by this kind of union, when they are nearly related to each other. If it is possible to force a bud from two wounds in union with each other, and partaking of the natures of two different species thus brought together, there can be no doubt about our being able to push this process farther than can be done by means of strange pollen in the usual way; and we think it can be done, for we perfectly concur in Dr. Herbert's view of the question. The well-known fact, that two natures in the purple Laburnum aspire to separate themselves from the union, and

assume their original character, cannot be accounted for on any other principle.

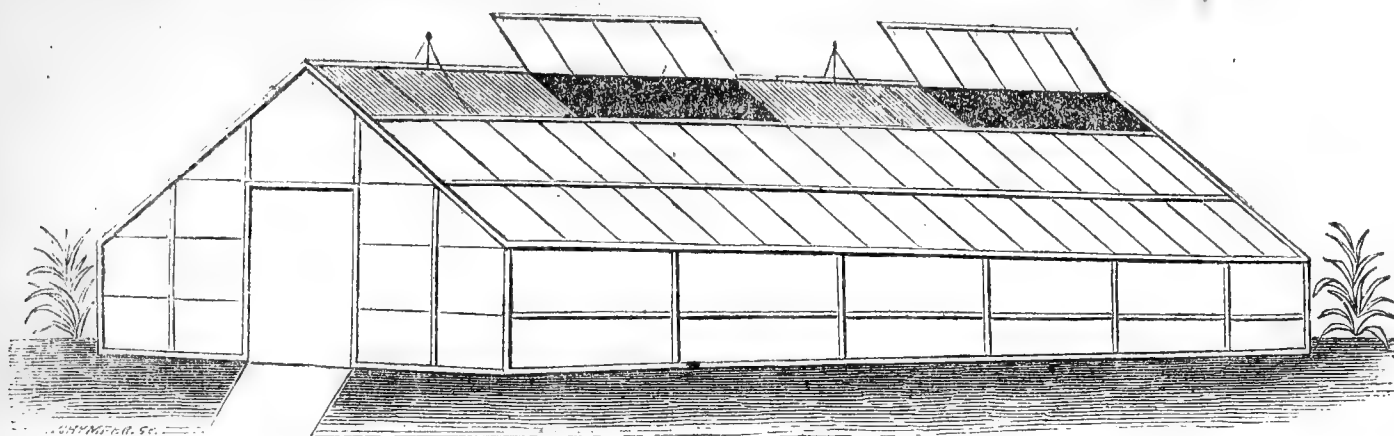
The means which Dr. Herbert suggested for effecting intermediate forms were to bud in the usual way, and when the union took place to kill the bud, and to prevent the edges from uniting by lacerating the bark till a quantity of cellular matter was formed, from which a bud might be expected to issue, if the growth of the tree were checked in other parts. It is impossible, however, to succeed simply by this process. The question involves the true origin of latent or incipient buds—a question that has never been satisfactorily answered by any one.

Mr. Beaton asserted, many years since, in the "Gardeners' Magazine," that if you cut out the buds from a yearling shoot, leaving only the top bud to carry on the branch, the part of the branch thus disbudded was incapable of producing a latent bud afterwards by any kind of manipulation. This assertion was much disputed by some in private correspondence, when Dr. Herbert opened the question in reference to the origin of the purple Laburnum. A new set of experiments were, therefore, set on foot, to prove if Dr. Herbert's suggestion could or could not be effected; these experiments were begun in 1841, and carried on till the end of 1847. The most conclusive of these experiments we shall briefly relate, as the result is, probably, the only stumblingblock in the way of clearing up the mystery which hangs over the origin of the purple Laburnum.

Truncheons of the common Willow are proverbial for the ease with which they root and produce shoots from all parts of their surface when planted or stuck into the ground. The Willow was, therefore, fixed on as the most likely plant to produce incipient buds. In the spring of 1841 cuttings were made from the stoniest Willow shoots that could be procured of the former year's growth. They were two feet long, and all the eyes or buds were carefully cut out, except the three top ones, and they were planted in the usual way in rich kitchen-garden soil. In 1843, when these had made two years' growth, some of them were cut below the growing branches, leaving only a bare stump. Now, we should naturally suppose that a Willow shoot of full three years' growth, and with abundance of roots, in good soil, would not refuse to shoot forth buds and twigs from all parts of the bark. Not so, however; for they died away inch by inch, roots and all, without ever offering to produce a single leaf. In 1844, another lot of the same batch were cut, and they died in the same way. After this, the bark of others was lacerated in all directions, to see if buds would issue from the new-formed wood over these wounds, but all to no purpose; and the last two were cut in the spring of 1847, when they were much stouter than a walking-stick, and they died also. Now, these Willow-shoots, although united to other Willows by inarching or budding, could hardly be capable of producing a union-bud—as we suppose the purple Cytisus and Laburnum to have done—seeing that they could not do so on their own roots; at any rate the inference is rational enough, and can hardly be controverted. How then, it may be asked, can you suppose the shield of a bud of the purple Cytisus could be capable of taking a part with the Laburnum stock to produce the purple Laburnum? We answer—simply, by surmising that the said bud was taken from a two or three-year-old shoot of the purple Cytisus, which is not at all unlikely, seeing how thin the bark of a younger Cytisus shoot is. Another inference in favour of this view of the question is, that in France they have always been in the habit of leaving more of the young wood attached to the buds in their nursery operations than is generally done in England; and all of us know, that if a bud on a two or three-year-old shoot is destroyed, a quantity of incipient buds will immediately issue from the surrounding parts. The close-spurring of the Grape Vine is founded on a knowledge of this fact or principle. Therefore, we can see no reason why two shoots of mature age, to form incipient buds, may not be made to produce a union-bud, if the parts are at first properly arranged; and we think we can see why union-buds are not produced in our nurseries when the more natural bud fails, leaving the shield alive and in union with the stock. Our invariable practice is to take the buds from one-year-old shoots; and we have seen, by the experiment with the Willow, that if buds on one-year-old shoots are destroyed, the shoots are not able to furnish others; besides, it may require more than a season or two to ripen the young wood over wounds sufficiently to produce buds; and leaving a portion of the young wood attached to the bud, may have something to do with the time required.—J.

(To be continued.)

TIFFANY SHELTERS FOR PLANTS AND BLOSSOMS—PROLIFIC 'BEES.



One-eighth of an inch to a foot.

As I consider it to be the duty of every reader of a publication devoted to giving information, to add his or her mite of intelligence, I beg to bring under your notice a novel and valuable application of tiffany.

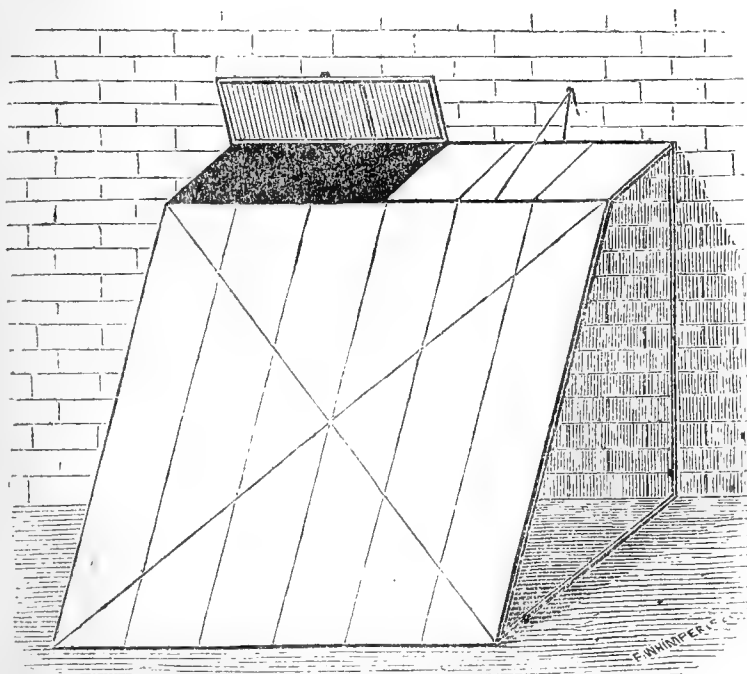
My neighbour, Mr. John Standish, last year enclosed a piece of ground 90 feet by 60 feet, with Larch poles standing 7 feet out of the ground, and about 10 feet apart. On these were nailed laths 19 inches from each other. The tiffany was pulled tight and tacked on the laths, a piece of common list being first put on where the tacks went, in order that the tiffany might not tear away, nor be cut by the heads of the tacks. The lower half of the sides (3½ feet) was tacked down in the same manner as the roof. The upper half was covered with a stouter kind, and tacked on to wooden rollers, so that this part could be rolled up or let down. The whole place underneath was laid out in beds, and was certainly a most agreeable promenade, even when outside the north-east wind blew as if it intended to ruin all the barbers in creation. Mr. Standish has proved tiffany to resist 14° of frost. I would advise all who wish for a cheap, and, at the same time, useful protection for plants, to make a Standish-tiffany-house.

In order that your readers may calculate for themselves the cost, let me say tiffany is 38 inches wide, price 5s. to 6s. per piece of 20 yards long; and as for the wood, the lightest possible frame that will stand together, will hold up tiffany. The appearance of the houses is as good as glass. At the distance of 100 yards it is difficult to say which is which.

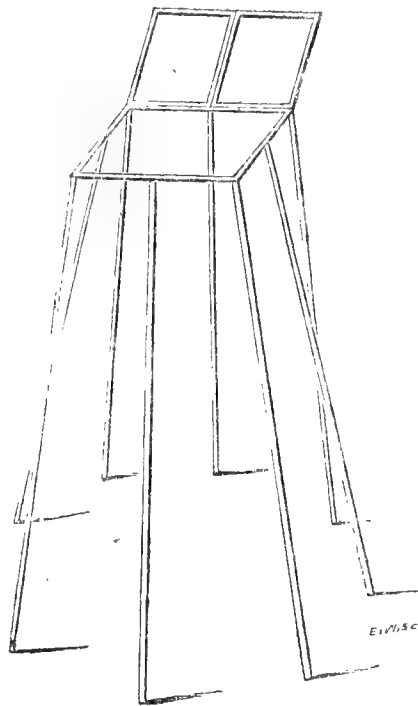
I am not a professional gardener, only an amateur, but I can quote my neighbour's words. He wanted "a place for hardening off plants taken out of the propagating-house—tiffany was just the thing." Again, "I placed many different sorts of plants under tiffany last summer, and without a single exception they have done better than ever they did under glass." "The Tea Roses remained under it all the winter." "I can say tiffany is one of the best and cheapest materials for many gardening purposes." "By making screens we shall ripen fruit that has never been properly ripened in the open air." Many more wonders does he add. Perhaps one of your clever correspondents, a man who understands the matter better than I do, will come to Bagshot, and if he takes the "proper season" he will not regret the visit, even if there were no tiffany-house to see.

Those who wish to know more on this subject I shall be most happy to aid in my humble way; for my neighbour is as big in heart as he is in body; nothing pleases him so much as giving a helping hand. So if I get a learned question down the lane, I go with "If you please, Mr. Standish, will you tell me?" &c.

I have not sent you a long account of his house and screens, but enclose sketches which are likely to answer all that is wanted. The house may be a lean-to or pitch. The ventilation is effected by flaps going the whole length of the house on one side, and are raised by a cord and pulley.



One-quarter of an inch to a foot.



Now for a word on bees. We have many about here, and one man last year had a hive which threw off six swarms or casts. Thus A we will call the stock hive and out came B. In two or three weeks B sent out C, A sent D* and E, C sent out F, and E sent out G, which has stood the whole winter, the others were murdered. Old hands tell me bee-houses are very bad things, the cottagers who have built them soon pull them down. "The bees never do any good in them." So says Mr. Payne, in

* Which flew away.

"Bee-Keeping for the Many." Mr. Taylor recommends houses. Mr. Payne says wooden hives are apt to give dysentery to bees unless well ventilated. This I find too true, though Mr. Taylor says not a word on this subject.

Where can we buy hives at a fair price? Mr. Neighbour advertises a cottager's hive price one guinea and a half. A bar straw hive might be sold for 5s., and a Taylor's amateur's bar hive for 7s. 6d., and then give a fair profit to the maker. When will M. Hermann's book on the Ligurian bees be published?

I suffered from the blues and set rat-traps before the hive on the board. Mr. Blue jumped on the place, up went the spring, and he was fixed. Now I have no more blues.—A YOUNG APIARIAN, *Bagshot*.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(Continued from page 385).

PLUMS.

Mogul Rouge. See *Red Magnum Bonum*.

Monsieur. See *Orleans*.

Monsieur à Fruits Jaune. See *Yellow Orleans*.

Monsieur Hâtif. See *Early Orleans*.

Monsieur Hâtif de Montmorency. See *Early Orleans*.

Monsieur Ordinaire. See *Orleans*.

Monsieur Tardive. See *Late Orleans*.

Monsieur Tardive. See *Suisse*.

Monstrueuse de Bavay. See *Reine Claude de Bavay*.

DE MONTFORT.—Fruit medium sized, roundish, inclining to ovate, with a well-marked suture on one side. Skin dark purple, covered with a thin pale blue bloom. Stalk half an inch long, not deeply inserted. Flesh greenish-yellow, tender and melting, with a thick syrupy and honied juice, and when it hangs till it shrivels is quite a sweetmeat; separates from the stone, which is small. Shoots smooth.

A delicious dessert plum. Ripe in the middle of August. It bears considerable resemblance to Royale Hâtive, but is larger, and appears to be an improved form of that variety.

MOROCCO (*Black Damask*; *Black Morocco*; *Early Damask*; *Early Morocco*).—Fruit medium sized, roundish, flattened at the apex, and marked on one side with a shallow suture. Skin very dark purple, almost black, and covered with thin pale blue bloom. Stalk stout, about half an inch long. Flesh greenish-yellow, juicy, with a sweet, brisk flavour, and slightly adhering to the stone. Shoots downy.

An excellent early plum. Ripe in the beginning of August.

Myrobalan. See *Cherry*.

NECTARINE (*Howell's Large*; *Jenkins' Imperial*; *Peach*; *Prune Pêche*).—Fruit large, roundish, and handsomely formed. Skin purple, covered with fine azure bloom. Stalk half an inch long, stout, inserted in a wide and shallow cavity. Flesh dull greenish-yellow, with a sweet and brisk flavour, separating from the stone. Shoots smooth.

A good plum for preserving and other culinary purposes. Ripe in the middle of August. This is quite distinct from the Goliath, which is sometimes called by the same name.

NELSON'S VICTORY (*Knevet's Late Orleans*).—Fruit medium sized, round, and marked with a shallow suture. Skin deep purple, and covered with blue bloom. Stalk half an inch long, set in a shallow cavity. Flesh firm, rather coarse, sweet and briskly flavoured, adhering to the stone. Shoots smooth.

A culinary plum. Ripe in the middle of September. The tree is a very abundant bearer.

New Orleans. See *Early Orleans*.

Noire Hâtive. See *Précoce de Tours*.

Œuf Rouge. See *Red Magnum Bonum*.

Old Apricot. See *Apricot*.

ORLEANS (*Anglaise Noire*; *Monsieur*; *Monsieur Ordinaire*; *Prune d'Orleans*; *Red Damask*).—Fruit medium sized, round, somewhat flattened at the ends, and marked with a suture, which is generally higher on one side than the other. Skin tender, dark red, becoming purple when highly ripened, and covered with blue bloom. Stalk three quarters of an inch long, inserted in a considerable

depression. Flesh yellowish, tender, sweet, and briskly flavoured, separating from the stone. Shoots downy.

A preserving and culinary plum. Ripe in the middle and end of August.

Parker's Mammoth. See *Washington*.

Paterson's. See *Gisborne's*.

PEACH.—Fruit large, roundish, inclining to oblate, marked with a shallow suture on one side. Skin bright red, dotted with amber. Flesh tender, melting, juicy, very sweet and luscious, separating freely from the stone. Shoots smooth.

An early dessert plum. Ripe in the beginning of August. It is quite distinct from the Nectarine Plum, which is also known by this name; and was introduced some years ago by Mr. Rivers, of Sawbridgeworth.

Peach. See *Nectarine*.

Perdrigon Blanc. See *White Perdrigon*.

Perdrigon Rouge. See *Red Perdrigon*.

Perdrigon Violet. See *Blue Perdrigon*.

PERDRIGON VIOLET HÂTIF.—Fruit medium sized, roundish-oval. Skin purple. Flesh rich, juicy, and excellent, separating from the stone. Shoots downy.

A first-rate dessert plum. Ripe in the middle of August. The tree is very hardy, and an abundant bearer. This is not the same as Perdrigon Hâtif and Moyeu de Bourgogne with which it is made synonymous in the Horticultural Society's Catalogue, both of these being yellow plums.

Petite Bricette. See *Mirabelle Tardive*.

Petite Damas Vert. See *Yellow Gage*.

Pickett's July. See *White Primordial*.

Pigeon's Heart. See *Queen Mother*.

Pond's Purple. See *Pond's Seedling*.

POND'S SEEDLING (*Fonthill*; *Pond's Purple*).—Fruit very large, oval, widest at the apex and narrowing towards the stalk, marked with a wide suture. Skin fine dark red, thickly strewed with grey dots, and covered with thin bluish bloom. Stalk three quarters of an inch long, inserted without depression. Flesh yellowish, rayed with white, juicy, and briskly flavoured, adhering to the stone. Shoots smooth.

A valuable culinary plum. Ripe in the beginning and middle of September.

(To be continued.)

PLANTING THE SURFACE OF ROSE-BEDS.

I AM thinking of covering my Rose-beds this year with low-growing bedders to hide the "brown earth." The Roses are chiefly half-standards; except in No. 1, where there are standards in the centre, half-standards outside.—S. E. L.

[Mixed Verbenas, Mignonette, dwarf Nasturtiums, and blue Convolvulus will do very well in the Rose-beds as you marked them; but 14 and 10 will not do at all. What can *Linum candidissimum* do with Roses? 11 again. There is no such thing in the world as a scarlet Linum; perhaps *grandiflorum* is meant, but is not a fit subject for Rose-beds.]

CULTURE OF TECOMA VELUTINA.

"AN OLD SUBSCRIBER" wishes to know if any one has succeeded in blooming *Tecoma velutina*; and if so, whether it is worth growing for its bloom, as the foliage is unattractive and very liable to red spider. The writer has had a plant four years, which has undergone the usual stove treatment; it has been stopped, coiled, and potbound to induce bloom.

[*Tecoma velutina* is indeed a most splendid greenhouse shrub, not a stove climber as you say; but no one has yet, as far as we know, succeeded in flowering it in Europe. Our own plant of it, raised by the Horticultural Society, has had the same treatment as *Tom Thumb* Geraniums for the last four years, and looks healthy and quite free from red spider, but our house is too cold for it. A Cactus-house, or a dry intermediate cool house, kept at from 45° to 50° with fire heat, would seem the best place for it

and for *Tecoma spectabilis* from a higher region. But the whole of that section come so near the obstinate *Spathodeas* of Western Africa on the one hand, and the fairy feathery plumes of the lovely *Jacarandas* on the opposite continent to the right, that our old gardeners have no faith in the blooming of that style of Bignonian plants. Our plant of *velutina* will go to the dogs the first potting day—it will never bloom in a regular stove under an English sun, nor will *spectabilis* either; but both would soon show their extraordinary gorgeousness trained against an open wall over at Lisbon, with the *Bouganvilleas* which “Queen Mab” told us of a year or two back. There *velutina* would bloom from March to November, and vie with any of the yellow *Allamandas*.]

HEATING THE WALTONIAN PROPAGATING CASE SUCCESSFULLY.

I, like many others, have found it impossible to keep up a sufficiently high temperature in Mr. West's very ingenious propagating contrivance, “the Waltonian Case,” by means of the oil-lamp which is provided by him. In my difficulty I wrote to “head quarters” for further instructions; but obtaining none, or next to none, I was thrown back upon my own resources, and I am glad to say with most satisfactory results. I have now no disappointments—no more trouble with my Case. I can keep up a temperature as high as 90° all shut up, or 84° to 85° with both lights tilted one inch. The solution of the difficulty was most simple. The lamp which I now use with so much success is in shape and size precisely the same as Mr. West's, but the burner is just double the size of his, and of course produces a flame as large again as his does, and imparts a proportionably greater heat. It consumes more oil than Mr. West's does when a temperature of 90° is required, but I find that a temperature ranging from 70° to 85° is sufficient to raise any seeds, and to cause almost any cuttings to strike root; so, instead of lowering the platform on which the lamp rests to obtain the requisite temperature, I keep it screwed up as high as it will go, placing a piece of tin plate, bent to fit, across a portion of the burner of the lamp. It is obvious enough that this will reduce the flame and the temperature, as well as the consumption of oil.

I have thus devised a plan of obtaining a high temperature, which was the desideratum, in a very simple way, the difficulty of which with Mr. West's lamp caused so much dissatisfaction and annoyance. I would recommend Mr. West at least to try a burner of the dimensions I have described, and I feel sure he will then at once substitute it in the place of his own small one, and so make his Case answer perfectly the end for which it is intended, and will give his customers greater satisfaction.—E. G., *Waltham St. Lawrence*.

NEW BOOKS.

THE ORCHARD-HOUSE.*—If orchard-houses are multiplied with the same rapidity as the editions of Mr. Rivers' “Orchard-house” are, they will soon become more numerous than village schools and churches. It seems but the other day that we noticed the sixth edition of this admirable little work, and now we have before us another and a seventh, with a quantity of new additional matter. The new matter consists of a chapter on “A Vineyard under Glass,” in which Mr. Rivers clearly shows how in a span-roofed house, 14 feet wide, and 30 feet long, twelve Vines may be planted, each producing twenty bunches, or, altogether, 240 bunches. By another arrangement of planting, two rows of Vines on each side of the centre walk, in the inside borders, and training them to upright pillars, a house of the same dimensions may be made to contain forty-eight Vines, each bearing at “a low estimate,” twelve bunches, making in all 576 bunches. Another feature in this edition is, extended directions for the cultivation of the Tangerin Orange, which Mr. Rivers seems to have reduced to a practical system. Of the other portion of the work we have so frequently spoken, it is unnecessary for us to say anything further than that those who are unacquainted with it, and who are desirous of understanding this entertaining system of fruit culture, should make themselves masters of the sound advice it gives.

* *The Orchard-house, or the Cultivation of Fruit Trees in Pots under Glass*. By Thomas Rivers, of the Nurseries, Sawbridgeworth, Herts. Seventh edition. London: Longmans.

THE MINIATURE FRUIT GARDEN.†—This is another of Mr. Rivers' works which have become established in the literature of gardening, of which a new edition has appeared; and it is one which addresses itself to all possessors of a garden; be it one of 100 square feet, or one of 100 yards square. It shows how, on a very small space of ground, a selection of the best varieties of fruit may be grown, without more labour and attention than is requisite for the indulgence of any pure enjoyment.

A FEW WORDS FOR THE APRICOT.

I WAS very much pleased to see the able pen of our friend, Mr. Errington, give out a few hints to the very much perplexed and disappointed friends of the poor Apricot, and I have very often wondered that the subject has not come under more frequent notice, when one goes from place to place and sees so many miserably poor objects suffering an annual amputation of their limbs, and more travelling the road to destruction; for it is not at all uncommon to go to gardens and gardeners of all classes, and see every tree about the place giving better satisfaction than the Apricot.

Well, and how is it? and what is the reason? I am sorry to say neither practical skill nor true science has been able to fill up this great blank yet. As Mr. Errington justly remarks, soil it cannot be, for we find the Apricot succeeding on soils of all colours. It is my opinion in four cases out of six the trees never get the benefit of these soils, but are driven into unctuous clay and bad subsoils to seek for nourishment. Who would ever think of planting his Vine-border with Cabbages? or what novice would ever think of digging it up two spits deep for Carrots? I have seen all this done, and even trenched out to the very subsoil nearly close up to the wall for Celery on Peach and Apricot-borders! If half the trees that were shown to us in such a delapidated state—if we could only see the roots and what they have crept into, and at the same time have the gardener's diary-book in hand, with the full account of all that has been given and of all that has been taken off the ground for the last five, ten, or more years, I think we might do well to turn on our heel with a resolution, in justification of the tree, to hold a national congress, or otherwise vote for a reform.

Now, I have an Apricot under my care, which, to my fancy, stands in rather an unfavourable aspect, but I think almost impossible to succeed with greater satisfaction. It is rather an old tree. It stands due east, with an old Strawberry-bed over the roots, and they have been there a long time; they receive very little attention, except keeping them clear of runners for the sake of the tree, and an annual dressing of rotten manure.

Now, last spring I was going to do away with these Strawberries, and have the ground forked over in a great hurry; but as I happened to be there myself when the work commenced, I was rather agreeably surprised to find that the soil was one mass of roots from the Apricot, and not from the Strawberry.

Well, I do not intend to draw an inference that the success is from the aspect nor yet from the Strawberry; but simply, I conclude, that the top dressing and the action of the sun upon the surface-roots are beneficial.

First of all, the tree stands upon a subsoil of sand and rock—which, by-the-by, I believe in the absence of loam to be the best subsoil possible for fruit trees, with about two feet of kitchen garden soil and loam. Now, we have other Apricot trees about the garden standing in all aspects except north, but none are one-third so fruitful as the one just noticed, some even running their roots under a range of cold frames; but that does not seem to suit them. No: because there is always something to prevent the free action of the sun's rays upon the roots.

I am sorry to trespass so much upon your valuable space; but a novice, unlike a practical, cannot say so much in a nutshell, so one word about aspects. Mr. Errington seems to prefer a south wall, but I hold in favour a western aspect, for two reasons: First, I think it helps to retard the trees a little in spring. And again, I think it is much better against late frosts; for we all know the effect of a hot sun upon wall-fruit blossom the first thing in a morning.

Mr. Errington's remarks on the well-doing of trees with their roots under pavements afford, I think, another proof of the bene-

† *The Miniature Fruit Garden; or the Culture of Pyramidal and Bush Fruit Trees, with Instructions for Root-pruning*. By Thomas Rivers, of the Nurseries, Sawbridgeworth, Herts. Ninth edition. London: Longmans.

ficial action of the sun upon their roots; and I have no doubt the cottagers can grow as good fruit in such situations as the best of gardeners, if they would favour them with a little stimulus occasionally; for I know of no fruit trees that will bear so much drought without injury to the foliage as the Apricot.—C. PEARs, *Grassendale, Liverpool*.

TO CORRESPONDENTS.

VARIOUS (Subscriber).—Geraniums are better hybridised out of doors than under glass. *Verbena venosa* is about eighteen inches high, and is far too tall to plant with *Geranium Perfection*. The old "Nosegays" are readily obtained.

ROSE OF SHARON (A Constant Subscriber).—Your description shows that you mean the Rose of Jericho. Its botanical name is *Anastatica hieracifolia*. You will see drawings and a full description of it in our No. 567. You could not obtain a living plant, nor would it be cultivatable if you could. In our last number there are several greenhouse climbers described. Our "Window Gardening for the Many" gives directions entirely applicable to small greenhouses in London and other smoky localities.

GAS-LIGHTED ROOM (A Subscriber).—With a ventilator at the top of the bow-window, and another ventilator below it, we do not think that gas burnt in the room would injure the plants. They should be shaded from the gas-light by a curtain.

BOOKS (P. W. F. B.).—Sanders and Hoare "On the Culture of the Vine;" Cuthill on "Mushroom Culture;" and Hamilton on "Pine Apple Culture." Buy our "Fruit Gardening for the Many." You will find what you require in that.

GRAPE (J. McM., Stratford Green).—Send your address on a blue-stamped envelope to Mr. Beaton, Surbiton, Kingston, Surrey.

GRAPE-BUNCHES BECOMING TENDRILS (A. S. W.).—We have no doubt that the cause of this is the roots being too cold in proportion to the temperature in which the branches are growing. Vines do not require pig-dung, nor any other very rich stimulating manure.

WOODLICE (T. T.).—We know of no mode of destroying these pests, except trapping them, keeping toads in the house, and deluging their haunts with boiling water.

SPERGULA PILIFERA TURNED BROWN—MARCH CUTTINGS OF PELARGONIUMS (A Typo).—The early frost touched all the young *Spergula* plants which we have seen, and all the Scotch-kale in our neighbourhood, and there is nothing green for man or beast just now within miles of us; cheer up, however, these visitations are rare in this climate. Summer drought killed all our old grass nineteen years out of thirty; but we never dreamed of giving up grass lawns for all that; the grass came better and finer afterwards, and it will be just the same with the "new grass." There is no reason why *Pelargoniums*, which are struck in March, should not be in bloom by the beginning of July; but that depends very much on the backward or forward state of the old plants when the cuttings were taken off.

HEATHS TO BLOOM IN JULY (Greenhand).—*Cavendishii*, the best yellow, and some *Ventricosa*—as *Ventricosa superba*—are the two best for your purpose.

TERRACE GARDEN (W. K.).—We never plant garden plans; we only correct ways of planting, so as to bring them within the fashion, and we have said so very many times.

HOLLYHOCKS (A Recent Subscriber).—For thirteen good, cheap, showy Hollyhocks, well varied, and of decided colours, we should recommend *Queen of the Whites*, white; *Lady Tarlton*, flesh; *Lizzy Improved*, peach; *Lady Franklin*, pink; *Hon. Mrs. Ashley*, lilac; *Unique*, carmine; *Lord Jocelyn*, cherry; *Memnon*, crimson; *Queen of the Yellows*, pale yellow; *El Dorado*, golden yellow; *Queen of the Buffs*, buff; *Walden Rival*, orange; *Black Prince*, black.

BUDDING PEACHES, &c. (A Young Beginner).—Peaches and Nectarines require to be grown on the *Muscule* Plum stock, but you may use the common for Apricots, and particularly for the *Moorpark*. If the stocks are only just planted you had better not cut them down, and they will be ready for budding in the autumn. The culture of the Custard Vegetable Marrow is the same as for the common sort.

REMOVING PROTECTION (G. D.).—It is absolutely necessary to raise, or to lower, whichever may be most convenient, the covering of muslin from your wall trees during the daytime in mild weather. If you do not, the blossom will in many instances be unable to set its fruit from the weakness and defective secretions incident to the absence of light and air. The trees require no watering, nor need you trouble yourself to fertilise the blossoms; if exposed, the wind, the bees and other insects will accomplish the due application of the pollen. Your Cauliflowers buttoning is a proof that they had a check from frost, are on a soil too poor, or have not been duly watered and aired; or all those defects of management may have concurred to induce premature heading.

LIME TO POTATOES (H. C. Simpson).—No one can tell exactly how many pounds of lime a hoghead of any capacity would weigh; and who can tell whether Dr. Lang means a sugar hoghead, or a beer hoghead? You had better write to Dr. Lang for more precise information.

FLOWER-GARDEN PLAN (F. J.).—No. 1, *Flower of the Day* Geranium, with or without an edging of blue *Lobelia*. No. 6, the match of No. 1. *Brilliant*, or any other good variegated Geranium, but it must be a Geranium, with a four-inch-wide edging of the *Cerastium*, of which you have so much. No. 11, *Robinson's Defiance* *Verbena*. No. 12, Your best white *Verbena*, with a ten or twelve-inch edging of *Purple King* round it. Nos. 2 and 8, *Tom Thumbs*, or any *Scarlets*; and Nos. 3 and 7, yellow *Calceolarias*, and the rest just as you please. It is just like trimming a dress after those are thus dealt with, and you must know more about that part than your teachers.

APRICOT BUDS DEAD (W. W. C. G.).—Whether by mixing lime with the Gishurst Compound you developed anything corrosive we cannot say, for we do not know the constituents of that compound; but two things are certain—first, that you were decidedly wrong to mix the lime with the Compound, inasmuch as that you are not told to do so in the directions sent with each box; secondly, it is certain that the buds are dead. We incline to think that their death must be occasioned by the roots having descended into a wet or otherwise ungenial subsoil; but you do not inform us where or on what soil the trees are growing. We cannot tell from such a description the flower at the Crystal Palace.

NAME OF FERN (Aethra).—This is one of the handsomest of our English Ferns, and belongs to the *Polystichum angulare* species. It is the *P. angulare* var. *sub-tripinnatum*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

MAY 23d and 24th. BEVERLEY AND EAST RIDING OF YORKSHIRE. Sec., Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

JUNE 6th, 7th, and 8th. BATH AND WEST OF ENGLAND. At Dorchester. Sec., J. Kingsbury, Esq., Hammet Street, Taunton.

JULY 18th and 19th. MERTHYR TYDVIL. Sec., Mr. W. H. Harris, 142, High Street, Merthyr.

N.B.—Secretaries will oblige us by sending early copies of their lists.

MAKING POULTRY SHOWS REMUNERATIVE.

THERE is a companionship belonging to a Poultry Show, which should interest all equally who are concerned in it. Love of the pursuit, and a desire to see these exhibitions placed on a firm basis, induce us to moot the question. What is the best plan for making these meetings self-supporting? It is certain they are not so in many instances; and when we consider the labour to which Secretaries and Committee men expose themselves, we think it "like the cheese down-west," far too hard they should have to suffer in pocket. We have nothing to do with, nor have we any care for, some of those speculative Shows, which cause fortunate (?) exhibitors to write and ask what we would advise them to do under the circumstances. "They paid say 6s. entry, gained a first prize of £3, had their birds claimed at ten guineas, which they have not received, and on the strength of the sale purchased another pen at £6, for which, as the Secretary said, 'to avoid confusion,' they paid."

We wish to speak of some of those well-conducted Shows, where nearly every demand is paid within a fortnight of the Show, and where every Committee man holds himself responsible for all claims on it. If the only dependance is on admission-money, it is trusting to a broken reed. A snow-storm, three wet days, some great attraction in another spot, very severe cold, all these things will destroy any hopes that were founded on admission-money. We will endeavour to clear up as we go on. We do not say there will be no visitors. There will always be those who delight in the pursuit, but there will not be the numerous attendance that will insure a profit to the responsible parties, or that will enable the projectors to enjoy the conviction that, let what may happen, they will not suffer in pocket. Every one will admit how essential a working Committee is to a Show; but the working members are very often among those, who, most justly, decline to sacrifice anything, beyond part of their rest and time during some days. This will explain the reason why many Shows that had always been prosperous died suddenly, and disappeared from the list. A Committee of eleven, composed of the Chairman, six opulent, and four working, solvent, respectable, but not rich men—those who have more children than freeholds. Every man, country, and society, has had its dark day. Such an one comes over the Committee; and if things do not alter, there will be a loss. At the meeting in the evening, the active men give an account of what they have done. The Chairman and other members will enjoy the Show amazingly when the birds are unpacked and put straight, and all is in apple-pie order; but they do not mean to work. Those who do will not spare themselves; and they believe, having worked, they have done their parts. They do not contemplate losing money. When, however, a small deficit is apparent, they are surprised to see those who have done nothing hitherto, show themselves still less disposed to pay. Some will give their colleagues to understand they do not consider themselves in any way liable for anything but the use of their names. The anticipated loss proves unfounded. There remains a small balance in hand after paying all expenses; nothing could go off better; the decisions were approved; no bird died; all were sent away punctually; exhibitors and visitors were profuse in their professions of support. THE COTTAGE GARDENER had a flaming article in praise of the

Show and its management. In the midst of this success, it is announced there will be no more Poultry Shows at Highfield. But the deficiency is a reality. The four think, seeing there is no secret in the fact they cannot afford to pay money, and that they do all the work, that they will be let off lightly. Not so, they are told what is their share of the loss, and they pay it. In both instances the Show is dead. It is impossible any exhibition can be carried on without these working men. We do not for an instant pretend that all working men are poor, or all lazy ones rich. We know many exceptions to both; but it is easier for a Committee to meet and pass resolutions than to find volunteers to carry them out.

Whatever may be the zeal of those who undertake to manage these meetings, they can hardly be expected to do so at their own expense. In the cases we have cited, the Committee is broken up. In the first, because there was the fear of expense; in the second, because the dread had become a certainty. A Poultry Show can appeal to, and depend upon, the attendance of more amateurs now than at any period since they were established; but seeing the curiosity that brought so many of the uninterested formerly has been amply gratified, a large attendance cannot be looked for. If the receipts at the doors are reckoned as assets before the Show is open, we are inclined to think when money is wanted to defray expenses, the account may be given in the expressive language of Robert Macaire to his shareholders—"Received so much;—Expended so much;—Remainder *nothing*."

Poultry Shows must be made self-supporting. When there is no possibility of loss, there will be no lack of men who will do any amount of labour. An indefatigable Sheffield man of this class told us last year, "He would gladly work all through the night for the pleasure of unpacking poultry in the morning." All the expenses of a Show are known to many of our experienced Committee men, and can be calculated almost to a fraction. This knowledge must be made use of to fix necessary deductions from entries, and Shows must be organised on the principle of sweepstakes. All the money paid for entries in the different classes will be divided among competitors, less a certain percentage advertised previously, which will be deducted to meet necessary expenses.

We throw out these hints, believing many thoroughly able to deal with the question will do so; and we believe it to be the best plan to enable poultry amateurs to compete and meet on pleasant terms of self-support and consequent self-respect.

CRAMP IN CHICKENS.

CAN you tell me why the toes of little chickens at about one month old or so are apt to turn crooked? I mean they turn inwards, and look like little hooks. My young birds are under sheds on dry gravel and chalk.—E. C.

[The toes of the chickens become crooked from cramp. Cramp arises from cold; and the latter is either in the atmosphere, or caused by insufficient feeding, or by the want of shelter. It is against nature for such things to happen. At the first appearance give strong beer freely. Let them stand on nothing but sand, earth, or gravel. Boards, bricks, stones, or asphalte will cause it.]

EGG-BOUND DORKING PULLETS.

THE hens are to be seen in great apparent discomfort, with their tails on the ground. Though eating heartily, there is evidently something the matter, as, on examination, an internal swelling underneath, and resembling an India-rubber ball to the touch is felt. I have given twice a dose of calomel and tartar emetic, without effecting a cure. The pullets were hatched last April, and few of them have laid yet. They have two meals a-day, one of oats and the other of boiled Indian meal.—AN INQUIRER.

[If your fowls had laid, the disease or rather discomfort from which they are suffering, would be at end. The two or three first eggs laid by a pullet always entail some difficulty, but it is greatly aggravated by your feeding on Indian corn, because it causes undue fatness which considerably increases it. Feed less nutritiously and give a table-spoonful of castor oil. As an immediate remedy is wanted, have the wing-feather of a hen well saturated with sweet or salad oil; it must then be passed up the egg-passage till it meets the egg. Oil must in this way

be introduced till the egg is laid. It will be a long operation. No force must be used, and the egg must not be squeezed, or pushed, with a view to forward the operation, as it may be broken in the passage, and that is *invariably fatal*. Your pullets are simply egg-bound; and when that is the case, the tail is carried drooping on the ground, as though like some of the marine divers, the birds depended partly on that appendage for support.]

HENS EATING THEIR EGGS.

To prevent this I have found it a good plan to make a little hole at each end of an egg, and blow the contents out. Then to fill the shell with a mixture of mustard, salt, and Cayenne pepper, putting a piece of adhesive plaster, or of the plain part of a sheet of postage stamps, over each hole, placing the egg thus filled into the nest when the egg-eating hen lays. When she gets a taste or two of the mixture she soon leaves off eating eggs.—THOMAS CARTWRIGHT, *Croydon*.

ROUP IN THE TURKEY.

I HAVE a fine hen Turkey, which this last month or two has appeared very unwell. She has little appetite, lowers her wings, makes a rattling noise when disturbed accompanied with a short cough, and is gradually losing flesh.—A SUBSCRIBER.

[Your Turkey has the roup. Purge her with castor oil; dose, two table-spoonfuls. Feed freely with stale bread soaked in strong beer. Mix salt with all her food, and let her roost in a dry sheltered place.]

SMALL YOLKLESS EGGS.

I HAVE a valuable Cochin hen, which, unfortunately, lays eggs not larger than pigeons', and which, upon being broken, contain nothing but white—no trace of the yolk being visible, the egg in other respects quite perfect. Can you advise a remedy for the above? or does it arise through a malformation in the hen? I am inclined to think there is disease in the ovary.—CHANTICLEER.

[We have often known hens to lay such eggs as you describe, but not more than three or four in succession. They then returned to proper eggs, helped somewhat by a copious dose of castor oil, which we always administer when anything goes wrong among our poultry. We are not disposed to think such eggs are the result of chronic disease, as our experience is opposed to such a belief. If there were any disease that prevented the proper formation of the yolk—if, for instance, instead of being in the egg, it pervaded the system, the hen would immediately become a hen-cock. Comb and gills, hackle, saddle, and tail would all, more or less, increase in size and similarity to the male bird, and she would crow lustily.]

WHEATEN FLOUR AS A SUBSTITUTE FOR POLLEN.

IN pursuance of the suggestion of "AN OLD APIARIAN," I, this morning (March 22nd), placed a small heap of wheaten flour at the entrance of one of my hives, and in the course of a few minutes had the satisfaction of seeing a couple of bees load their thighs with it after the manner of pollen, and convey their burthens into the hive. May I hope that this fact will encourage others with more spare time than now happens to be at my disposal, to pursue the experiment to some practical conclusion? Could not "AN OLD APIARIAN" furnish us with some hints as to a method of supplying bees with this commodity from the top of the hive, or in some more convenient manner than has yet suggested itself to—A DEVONSHIRE BEE-KEEPER?

METHOD OF REPLACING THE QUEEN BEE.

THE bee-keeper at this season of the year who has a number of stock-hives, not unfrequently finds one or more of them in an unhealthy and indolent state, in consequence of the queen having died during the winter. The result of which is known to a certainty. The bees may remain in their hive for a few weeks, or it may be months, gradually diminishing in numbers; and, however well stored it may have been with food, it is

soon left tenantless. At the commencement of my bee-keeping, I had a loss or two from this cause, but by a very simple expedient have entirely obviated any risk from such occurrences. It is well known, that if a queen is taken from a stock, either by accident or otherwise, during the summer season, the workers immediately set about replacing the loss, by putting an egg into a queen's cell and nursing a queen. Hence it is evident that if the workers have eggs or young brood of a certain stage at their disposal, they will soon repair the loss; but when they meet with such a loss during the winter it almost invariably happens that the workers soon die also. Now the method suggested is, that where the bee-keeper discovers a hive in this state, he should take out a piece of comb containing brood in its infancy out of a thriving hive, fasten it into the one without a queen, and the first favourable day will attest that they have been inspired with new life:—instead of loitering about and apparently taking every bee that comes within sight as an enemy, they will be found all at work in earnest, repairing and cleaning out combs, and in short doing all they find needful for their increase.

But, if any of your bee-keeping readers imagine the above method a hazardous one, there is also another method which will prove equally successful, and from its simplicity the most wary may succeed with it. As in the other case, I take it for granted there is one hive or stock with a queen and one without her; early in the morning examine the floor or board of the stock containing the queen, and almost invariably will be found newly deposited eggs at this time of the year, especially if the bees are fed artificially. Cautiously remove this board, place it under the stock without the queen, and your object is accomplished. If the stock is strong, ere long it will be ascertained the eggs are carefully carried up, one placed in a royal cell, and in due time the loss is remedied, numbers rapidly increase, the stock saved, a little trouble rewarded by seeing all diligence where otherwise it would have been stillness and death.—A BERWICKSHIRE BEE-KEEPER.

[The demise of a queen during winter is by no means unfrequent, and may be considered tantamount to the destruction of the colony. It is entirely useless to afford the bees the means of raising an artificial queen by introducing brood-comb until drones are present to fertilise the young sovereign. As these rarely make their appearance till April, or perhaps May, it will generally be found that the stock has by this time become too much weakened to repay the attempt to preserve it. The idea that bees will transport into royal cells eggs which have been dropped on the floor-board of a hive is directly at variance with the experiments of Huber, who declares that bees "are not charged with the care of transporting into cells the eggs misplaced by the queen." Any instance in which success has apparently attended such an experiment may, probably, be accounted for by the hypothesis that the queen may not actually have died but from age or other causes; her breeding powers have remained dormant until roused into activity by a greatly increased temperature.]

INTRODUCING LIGURIAN QUEENS.

Do you think I can introduce the Ligurian queens into my hives in the following manner?—I have adopted the storifying system, and have often increased my stocks by taking a box away, and allowing the bees to form a new queen. Now, I have several boxes which I neglected to remove in the autumn, and do you think I might take them off when I receive the Ligurian queens? and after ascertaining whether the stock-box or the one removed contains the queen, add her Ligurian majesty to the one deprived of royalty? or could you suggest a better plan?—W. BARTLETT.

[To render your plan successful, particular attention must be paid to three points. 1st. Be very careful not to get both queens into the same box. 2nd. Be sure that the Ligurian queen has sufficient workers to establish a strong colony, 3rd. See that there is not an undue proportion of drone comb in the box, as this is generally the case with supers. We should, however, decidedly prefer placing her majesty at once at the head of a good swarm in pursuance of the instructions given by "A DEVONSHIRE BEE-KEEPER."]

THE QUEEN BEE LAYING EGGS, AND THE LARVÆ SPINNING COCOONS.

THOUGH the late Dr. Bevan was a great admirer of Huber on bees, he did not scruple to point out his errors. One of these

regarding the queens not laying eggs to produce workers and others, for drones at the same period. Some years back I called Dr. Bevan's attention to this, and observed that I once saw a queen depositing eggs in common cells, and soon afterwards repeating the same in those for drones; but, like Dr. Bevan and others, I fell into another of Huber's errors respecting the larvæ of bees spinning cocoons—that was before I had studied their habits minutely. I mentioned that also to Dr. Bevan, who adopted the error at page 17 in his excellent book, the "Honey Bee;" but he was quite alive to the contrary after I had told him that the larvæ were too tightly fixed in their cells to turn round and spin cocoons, like grubs of some other kinds which are not bred in cells.

The larvæ of bees, like those of wasps, may close the mouths of their cells with a silken web, which are afterwards sealed over by the perfect insects. Perhaps it was this that led Huber to believe that the larvæ of queens spin "incomplete cocoons" over their heads and shoulders only. He considered this wisely ordered, so that the head queen may not run the risk of losing her sting in the silken meshes when attacking the brood in the cells. But this seems only fanciful; for in general she only attacks or tears with her mandibles the mouths of the cells, and not the lower portions, which are in reality uppermost. Besides, her wrath is seldom aroused until the larvæ have passed from the pupa state and broken through the silken meshes, or the supposed incomplete cocoons.—J. WIGHTON.

OUR LETTER BOX.

BATH AND WEST OF ENGLAND POULTRY SHOW.—We are informed that "a Sweepstakes for Malay Cocks" has been added to the schedule of this Show since the prize list was printed.

POULTRY-HOUSES (*Colville Wortley*).—In our "Poultry Book for the Many" you will find the particulars you require. Before an answer can be given to the query, "Which is the most economical?" information must be given relative to the materials most cheap in the neighbourhood. One of the warmest and most durable may be built of turves and thatched. As to the cost, no one can tell that unless he were on the spot; and we are sure that houses may, with ordinary common sense, be constructed where they are to be erected cheaper than they can be bought ready-made and carriage paid upon them. For mere roosting purposes about four square feet of surface for each bird are a healthful allowance. Therefore, a house six feet square would accommodate nine birds, and the nest-house should be about the same size, for if smaller there is no elbow room. The height should be at the least seven feet.

OIL CAKE FOR FOWLS (*J. R.*).—We never knew of this being used as food for poultry. If there is no rule requiring that fowls exhibited shall have been the exhibitor's property for a longer time you would be justified in exhibiting fowls bought even the day before the Show. But Exhibitions usually have a rule requiring that the fowls shall have been the exhibitor's some months before they are shown.

LIGURIAN BEES (*Honor*).—In due time a hive or hives of these bees will be exhibited near London. If you wish for any queens of this species write to W. T. Woodbury, Esq., Mount Radford, Exeter.

DIARRHŒA IN BEES (*A Beginner*).—In reply to your question respecting the disease known by the name of *dysentery* in a stock-hive of bees, it is indicated by the appearance of their excrement, which is of a dark colour, in unusual quantity, and causing an intolerably offensive smell in the hive, the deaths in the family being also unusually numerous. This disorder amongst bees generally arises from confinement in a damp impure atmosphere, and, in consequence, an unnatural retention of their fæces. Some have thought that it is aggravated by a want of fresh water at a time when the bees cannot get abroad to obtain it. "Bees," says De Gelieu, "have no real disease; dysentery, about which so much noise has been made, never attacks the bees of a well-stocked hive that is left open at all seasons, but only those that are too long and too closely confined. They are always in good health as long as they are at liberty; when they are warm enough, and have plenty of food. All their pretended diseases are the result of cold, hunger, or the infection produced by a too close and long confinement during the winter." Mr. Taylor says, "As soon as the disease is apparent, no time should be lost in lifting the hive from its board, expelling the vitiated air, and scraping and washing away all impurity, repeating the process, if needful, on some fine subsequent day. But the floor-board should be well dried, or a fresh one may with advantage at once be substituted for it. All remedies, as they are called, by feeding with various prescriptions, do more harm than good."

LONDON MARKETS.—MARCH 26.

POULTRY.

First-class Poultry would appear to be very scarce; and the last few months cannot have been favourable for rearing, if we may judge from the supply of choice fowls, which is unusually limited.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Large Fowls.....	6	0 to 6	6	Turkeys.....	0 0 to 0 0
Smaller Fowls.....	4	6 " 5	0	Guinea Fowls.....	2 6 " 3 0
Chickens.....	3	6 " 4	0	Partridges.....	0 0 " 0 0
Geese.....	0	0 " 0	0	Pigeons.....	0 9 " 0 10
Goslings.....	7	6 " 8	0	Hares.....	0 0 " 0 0
Ducks.....	0	0 " 0	0	Rabbits.....	1 4 " 1 5
Ducklings.....	4	0 " 4	6	Wild ditto.....	0 8 " 0 9



